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**Famine Mitigation Activity Grant Program
Ethiopia Projects
Interim Evaluation**

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DEFINITION OF ACRONYMS

A.I.D.	-	United States Agency for International Development
CRDA	-	Christian Relief and Development Association
ESB	-	Emergency Seed Bank
ESC	-	Ethiopian Seed Corporation
FMA	-	Famine Mitigation Activity
FMPI	-	Feed My People International
GOE	-	Government of Ethiopia
GTZ	-	German Technical Assistance Organization
LWF	-	Lutheran World Federation
LWR	-	Lutheran World Relief
MOA	-	Ministry of Agriculture, Ethiopia
MOH	-	Ministry of Health, Ethiopia
NACID	-	Nazareth Children's Center and Integrated Community Development
NGO	-	Non-Governmental Organization
OFDA	-	Office of U.S. Foreign Disaster Assistance
PMP	-	Preparedness, Mitigation and Prevention
REST	-	Relief Society of Tigray
RLF	-	Revolving Loan Fund
RRC	-	Relief and Rehabilitation Commission of Ethiopia
SORDU	-	Southern Range Development Unit
VT	-	Vegetable Trough

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I. EXECUTIVE SUMMARY

A. Purpose and Methodology

This is an Interim Evaluation of the Office of U.S. Foreign Disaster Assistance (OFDA) Famine Mitigation Activity Grant Program. To perform this evaluation, a five-person team visited sites of Non-Government Organization (NGO) projects in Ethiopia in July and August, 1993. The objectives of the evaluation were to 1) evaluate the Grant Program's effectiveness as a pilot program for implementing mitigation activities, and 2) assess the progress of the construction phase of projects funded under the Grant Program. The grants were awarded in Fall, 1992 for the following five activities in Ethiopia:

<u>Grant</u>	<u>Activity</u>
Feed My People International/NACID	Emergency Seed Bank Project
Africare	Small-Scale Irrigation
Africare	Vegetable Troughs
CARE	Vet Scout Program
Lutheran World Relief	Soil and Water Conservation

The evaluation field work lasted approximately three weeks. Three specialists assessed the technical performance of the projects funded under each grant, while the remaining members evaluated the approach to famine mitigation taken by the Grant Program. The resulting report contains conclusions and recommendations concerning the five individual grants but focuses on the Grant Program itself.

B. Major Findings

1) **The grants successfully targeted famine-vulnerable groups.**

Many of the groups targeted were former relief recipients. Project areas often contained displaced persons or returning refugees and soldiers. These groups are vulnerable to famine and would be among the first to require relief if one should occur. By strengthening the capacity of vulnerable people to cope with drought and famine, the projects prevent and mitigate the effects of future droughts and famines and reduce the relief requirements of vulnerable groups.

2) **The funded projects generally targeted the objective of the Famine Mitigation Activity.**

To the extent that they were restricted to promoting basic subsistence strategies, the grants alleviated the effects of drought and famine on vulnerable populations and environments, generally without crossing over the line into development.

3) **The NGOs were appropriate implementors of famine mitigation projects.**

The NGOs' biggest strength is that the projects are managed by

Ethiopian nationals from the local areas in which the NGOs operated. These managers know the local conditions and are sensitive and responsive to the needs of the beneficiaries. The most effective projects were identified by local communities and will be taken over by them following implementation, enhancing local coping capacity and long-term project sustainability. In some areas the NGOs acted as a surrogate government with greater access to funds and greater operating efficiency than government agencies under current conditions.

4) The most effective projects included all environmental, social, technical and management aspects required for success.

By combining OFDA funding with that of other donors, Lutheran World Federation was able to include all necessary factors -- dam and canal construction, soil stabilization through tree planting, seeds and tools, technology transfer, extension services and monitoring -- to produce sustainable, community-operated irrigation projects in areas formerly dependent on relief.

CARE included multiple components of successful cattle raising via separately-funded projects in hay-making, community rainwater catchment and improvement of traditional water holes. CARE's project is appropriate to the pastoralist region in which it is implemented. However, technical and management problems arose because of CARE's failure to secure the necessary drugs for cattle treatment prior to implementation, and by placing too much reliance on the Ministry of Agriculture to conduct vaccination programs.

Africare's vegetable trough project provides materials, construction and extension services. The costs of the troughs and the introduction of new crops which are unfamiliar to Ethiopian farmers, however, are obstacles to widespread adoption which may ultimately require more resources to overcome than are available under the current grant.

In its irrigation projects, Africare exclusively builds dams and relies heavily on the Ministry of Agriculture to dig canals, stabilize soil upstream, provide seeds and tools and extension services, and to transfer the project to community operation. A silted-up, non-functional dam built by the Ministry of Agriculture in the vicinity raises questions about its capacity to deliver these requirements. Africare's community water supply improvement project was less oriented towards famine mitigation than the others.

The Feed My People International/Nazareth Children's Center and Integrated Community Development (FMPI/NACID) emergency seed bank project includes extension, storage and provision of seed but lacks the resources to provide other vital components such as irrigation water and animal draft power. FMPI/NACID is just getting a foothold in Tigray and will be in a better position to address these problems in the future, provided that they concentrate on meeting the communities' self-professed immediate

needs for water, animal draft power and grinding mills. In general, the evaluation team was extremely impressed by the dedication and hard work of all the grantees and their staffs.

5) Local-level famine mitigation projects devoted to increasing food security are an important complement to macro-economic programming.

Ethiopia currently has a window of opportunity of relative peace and social stability during which to break its cycle of famine and relief. Famine mitigation projects directly targeting household food security can contribute towards this end. Most Ethiopians are poor and rural, with limited access to health care. Few wage jobs are available. Attempts to build a strong national economy depend on maintaining local food security for the majority of the population. Failure to do so may well bring political instability and conflict resulting in the loss of macro-economic development investments.

Food and Humanitarian Assistance Office programs at the A.I.D. Mission include grants to NGOs for drought and famine mitigation as well as food-aid. With on-going recovery from the war and recurrent drought, these famine mitigation interventions are critical to Ethiopian stability and more are needed. The OFDA funded grants are a positive contribution in this regard.

6) Ethiopian famine mitigation, particularly drought mitigation, depends on minimizing or reversing environmental destruction to preserve the natural resource base.

Since 90% of Ethiopians are engaged in agriculture, there is a direct relation between environmental degradation and food security. Much commendable work has been done through food for work slope stabilization and tree planting conservation projects in environmentally degraded areas. However, deforestation, over grazing and improper land-use and farming methods have led to deterioration of the natural resource base over large areas. Conflict and land tenure insecurity have contributed to lack of land stewardship. Environmental stress increases with population pressures; more remote locations showed greater bio-diversity and offered more coping options. Better environmental resource conditions existed overall in more sparsely populated areas. Water management through dam and well construction or rainwater catchment were often important project components. Water development is still a pervasive need in drought-prone areas. General land-use management is necessary to achieve proper crop selection or grazing practices given soil-type and slope.

C. Recommendations

1) More attention should be given to natural resource conservation as a famine mitigation strategy.

Project designs should take full account of environmental factors affecting their outcomes. Intervention sustainability and

effectiveness depend on proper cycling of soil, water, vegetation and animals. Specific environmental management strategies will vary by region, but may consist of such things as livestock marketing to prevent overstocking, water catchment and soil and water conservation. Donors should review proposals from the standpoint of environmental sustainability. NGOs should design projects in which all relevant environmental factors are considered or collaborate with other NGOs to produce sustainable project designs and implementation.

2) OFDA's Prevention, Mitigation and Preparedness (PMP) Division needs to better define the criteria for determining when and where to undertake famine mitigation interventions and streamline the funding process.

The five grants evaluated here were funded by identifying target countries and requesting pre-proposals from NGOs for famine mitigation projects in those countries. The pre-proposals were reviewed and full proposals requested for the most suitable ones, followed by requests for additional information. This process was burdensome for both reviewers and offerors. Furthermore, while the pilot projects represent appropriate famine mitigation designs, there has been considerable Mission resistance to having projects implemented by OFDA outside of the Missions' own programming strategies both in Ethiopia and Agency-wide. In 1992, after the Ethiopia project funds had been obligated, OFDA/PMP was given guidance not to pursue further bilateral projects. This guidance suggests a revised administrative approach to famine mitigation which avoids ad hoc OFDA bilaterally funded projects but in which the pilot project designs could nevertheless be instrumental:

1) In support of Mission disaster PMP initiatives OFDA/PMP is currently providing technical assistance to such efforts in Niger and Haiti.

2) When linked to OFDA relief operations PMP is uniquely placed to bridge the gap between relief and development, designing or reviewing proposals for interventions which promote self-sufficiency and reduce dependency among disaster relief recipients.

3) Wholesaling rather than retailing famine mitigation projects by funding umbrella organizations such as the World Food Program operating in multiple countries to improve their capacity to formulate and implement famine mitigation designs.

4) Supporting worldwide, regional or bilateral preparedness activities - which improve institutional capacity to warn or respond to disasters. For example, OFDA/PMP is currently funding a project with the UN Department of Humanitarian Assistance to link together the information and communication systems of major international disaster response organizations.

II. INTRODUCTION

A. Purpose of the Famine Mitigation Activity Grant Program

Famine mitigation bridges the gap between relief and development. Mitigative activities support the efforts of a population to achieve basic subsistence, reducing the need for outside relief assistance and putting the beneficiaries on a path towards sustainable development. The Office of U.S. Foreign Disaster Assistance Prevention, Mitigation and Preparedness (OFDA/PMP) Famine Mitigation Activity (FMA) seeks to alleviate the effects of drought and famine on vulnerable populations and environments. In 1992 OFDA awarded grants for five famine mitigation activities in Ethiopia under the Famine Mitigation Activity Grant Program. Two grants were for soil and water conservation, two were agricultural and one was for veterinary care of livestock. The funded projects are pilots to test the value of these types of interventions for reducing vulnerability to famine. They are intended to increase food availability, improve agricultural and livestock production, and conserve and develop natural resources.

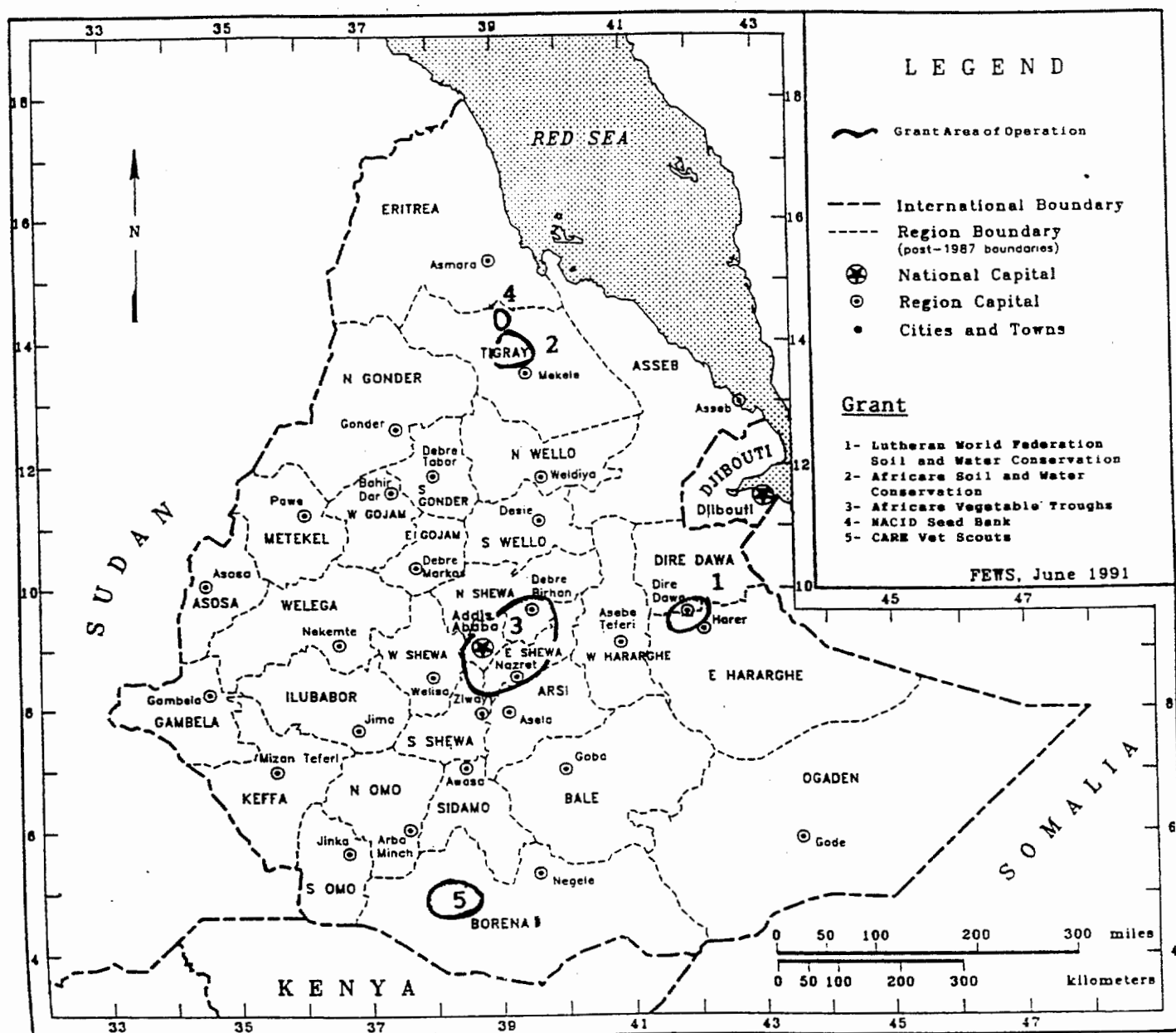
B. Constraints and Opportunities Addressed by the Grants

Recurrent famine is part of Ethiopian life. While 90% of the population is engaged in farming, food security is denied to many owing to widespread poverty from decades of poor public policy, expanding population, environmental degradation and civil conflict. Under these circumstances, regional droughts caused by naturally occurring climatic variation periodically overwhelm indigenous coping strategies, causing famine. After years of political stagnation and civil war, the country currently, perhaps temporarily, has an opportunity to break the cycle of famine and relief and re-establish secure food production for its people. The five FMA Grant Program activities are clearly too small-scale to accomplish this objective by themselves. They can, however, serve as pilots to demonstrate the viability of their designs for future famine mitigation activities and at the same time have a positive impact on the lives of their beneficiaries.

C. Technical and Organizational Approach

Grants were awarded in Fall, 1992 for the following five activities in Ethiopia (figure 1):

<u>Grant</u>	<u>Activity</u>	<u>Area</u>	<u>Region</u>
Feed My People/NACID	Emergency Seed Bank Program	Adigrat	Tigray
Africare	Small-Scale Irrigation	Mekele	Tigray
Africare	Vegetable Troughs	Addis	Shewa
CARE	Vet-Scout Program	Yabello	Borana
Lutheran World Relief	Soil and Water Conservation	Dire Dawa	Hararghe



The grants were based on a review of proposals solicited by the FMA Grant Program. Offerers were asked to present projects designed to alleviate famine in a specified group of target countries: Ethiopia, Angola, Laos and Sudan. Projects were requested in the areas of:

- 1) Seeds and hand tools,
- 2) Livestock preservation,
- 3) Water resource conservation,
- 4) Food/cash for work and cash transfers,
- 5) Market interventions.

Awards were based on the criteria of:

Proposed design

- 1) Responsiveness, clarity and appropriateness of application,
- 2) Approach enhances local institutional coping capabilities,
- 3) Approach exhibits potential positive long-term impact,
- 4) Approach exhibits potential for widespread adoption,
- 5) Transferability/sustainability once initial inputs cease,
- 6) Strength of planning/assessment, monitoring and evaluation,

Qualifications of Implementing Institution

- 7) Experience in design and implementation of similar programs,
- 8) Experience and established project area operations and networks,
- 9) Capabilities related to planning, training and collaboration with NGOs,
- 10) Linkages with local organizations that can provide assistance,

Qualifications and Experience of Personnel

- 11) Technological and work experience in fields of proposed activity,
- 12) Country-specific experience and fluency in major language groups.

At the time of the evaluation, projects implemented under the five grants were nearing completion of their construction phases. Most project inputs had been obtained and distributed and some initial outputs had been generated.

III. PURPOSE OF EVALUATION

A. Rationale for the Evaluation

The purpose of the evaluation is to determine whether the projects funded under the FMA Grant Program constitute successful approaches towards the goal of famine mitigation. To be successful, a project must be low-cost, sustainable, replicable, and promote food security among a large number of beneficiaries.

B. Concepts to be Examined/Tested

The evaluation seeks to determine the applicability of the intervention types funded through the pilot projects -- soil and water conservation, livestock preservation, seeds and tools -- to the goal of famine mitigation.

Information obtained from the evaluation will be used to:

- 1) improve the implementation of individual projects,
- 2) assess the replicability of the project designs as famine mitigation interventions,
- 3) evaluate the overall effectiveness of the FMA Grant Program,
- 4) evaluate the appropriateness of famine prevention, mitigation and preparedness as a programming strategy for Ethiopia.

The two concepts being tested are:

- 1) that local-level small-scale interventions can enhance food security for target populations, and
- 2) that enhanced food security is a necessary component of sustainable development in Ethiopia.

C. Evaluation Methodology

- 1) Key variables and issues explored

The grant activities are evaluated according to seven binary (yes/no) indicators:

- 1) Is the project low-cost?
- 2) Does it impact a large number of beneficiaries?
- 3) Is the impact measurable?
- 4) Does the design permit quick implementation?
- 5) Is the project replicable?
- 6) Does the project build on and enhance local capacity?
- 7) Is it sustainable, both economically and environmentally?

The contribution of each project to food security and household income potential is assessed according to the indicators:

- 1) Does the project prevent population displacement?
- 2) Prevent loss of productive assets?
- 3) Reduce recovery time from the last drought?
- 4) Enhance coping strategies, both technically and socially?

2) Data Collection

Data was collected by observation during visits to the project sites. The site visits also included interviews with beneficiaries, project managers, government officials, and other organizations. Additional information came from project documentation and published reports.

3) Types of analyses employed

Data analysis was conducted on two levels. A technical review is provided for each individual project implemented under each of the five grants, and of each grant overall. A second analysis is provided of the overall effectiveness of the grants in achieving the programmatic goals of enhancing food security and mitigating famine.

D. Limitations of the Methodology

The analysis is limited by the fact that the projects are still early in their implementation phase and that baseline data availability and quality varies by project. In addition, some sites and designs were changed from the original proposals due to security and technical problems, and funding delays.

IV. ORGANIZATION OF THE FMA GRANT PROGRAM PROJECTS

A. Lutheran World Federation Soil and Water Conservation

OBJECTIVE: To increase water supply at several sites and to introduce soil conservation and erosion control measures to improve agricultural productivity and enable farmers to harvest crops three times per year rather than once.

The grant specifies that the project objectives are to:

- provide reliable water sources by constructing river diversions, and by developing natural springs to provide potable water;
- develop and rehabilitate small-scale irrigation and livestock water sources;
- provide seeds, handtools, and plow oxen for the development of agricultural systems;

- provide soil conservation and erosion control measures upstream of the dams and canals to stabilize the soil.

The beneficiaries are 2,700 agro-pastoralists in Zuriya Province and 1,000 nomadic pastoralists in Adigala. The beneficiaries are principally women and the poorest.

The poorest will benefit from the project's emphasis on food production; cereals for domestic consumption, and vegetables for income generation. After the first transitional year, annual family income for the beneficiaries is estimated to be \$2,800. The project will provide employment to 1,200 laborers for four sites through a Food for Work activity which will be funded by other means.

The project will require in-community agreements that at least one half of committee members elected be women and will specify that priority be given to female household heads in allocation of initial seed loans.

OBSERVED ORGANIZATION: Lutheran World Federation (LWF) has been doing irrigation projects in the Hararghe region since 1987. Its system of taking requests from local communities through the Ministry of Agriculture (MOA), and of designing and implementing the individual projects is thorough and effective. Because most of the individual projects are improvements and expansions of traditional systems, technology transfer and community ownership are fairly easy to achieve.

As finally implemented the FMA Grant to LWF through Lutheran World Relief contributed to four stream diversion and irrigation projects at sites around Dire Dawa in Hararghe Province, southeast Ethiopia. The OFDA funds donated represent about 15% of the total cost of each project which includes the actual works and follow up activities over a period of three years. The LWF quarterly progress reports contain itemized expenditures for the FMA funds applied to each of the four projects. Though there was some change in the sites due to security issues from the original proposal, the type of project remained the same.

The individual LWF project sites using OFDA funding are:

- 1) PROJECT: Welenso, Bishan Behe
LOCATION: 3 km southeast of Dire Dawa
DATES: Start-March 1993 - Finish-September 1993
WORKS: Development of two springs, a closed channel across the river bed, stabilization of river banks, and 5000 meters of improved stabilized canal.
IRRIGATION AREA: 125 hectares
BENEFICIARY HOUSEHOLDS: 600
WORKERS PER DAY: 500
OFDA PARTICIPATION: \$40,000

BACKGROUND: The direct beneficiaries of the project are Gurgura returnees who fled to Somalia during the Somalia-Ethiopia conflict in 1979 when there was fighting in the area. They returned in 1985 at the outbreak of the Somalian civil war. Twice displaced, they had virtually no productive assets and received relief aid while trying to restart their traditional spring fed agriculture. LWF first intervened in 1990 to improve the irrigation system. This project will complete the irrigation delivery scheme, enabling the local farmers to grow three crops per year.

OBSERVATIONS: Work is in progress and on schedule with well organized local participation. The people using the irrigated land are already skilled in irrigated agriculture, demonstrated by their management of a large papaya plantation and several mixed plots with fruit trees and field crops. During the visit large numbers of grasshoppers and locust were observed which are preventing the planting of the next corn crop. The land under cultivation is fairly well stabilized with rock terraces. The surrounding land is of generally poor quality with little soil and is not much cultivated.

- 2) **PROJECT:** Harar Zuria, Dowe
LOCATION: 55 km south of Dire Dawa in Eastern Hararghe
DATES: Start-May 1993 - Finish-November 1993
WORKS: Two diversion weirs, and two canals totalling 4000 meters.
IRRIGATION AREA: 900 hectares
BENEFICIARY HOUSEHOLDS: 1000
WORKERS PER DAY: 500
OFDA PARTICIPATION: \$50,000
BACKGROUND: Much of the population was dislocated during the Somalia-Ethiopia conflict. There has also been local fighting in the area over religious matters. Though the Dowe river valley is fairly rich compared to the surrounding areas it was devastated in the 1984-85 drought which was most severe in the Hararghe region. CARE, with the Relief and Rehabilitation Commission of Ethiopia (RRC) distributed relief food after the drought.

OBSERVATIONS: The area around the irrigation project is quite populated and though the land seems to be fairly productive it is reported that many households have little or no good land to cultivate. The project intends to enable the land poor to have access to highly productive irrigated parcels. The LWF project director noted that in the case of Harar Zuria a major reason for developing an irrigated perimeter in a comparatively rich agricultural area is to provide food surpluses. These surpluses can help maintain food security in the surrounding less rich areas that have neither the soils nor the spring fed streams to produce much food. This project started only recently. Though little of the works have been constructed the project is on schedule for November 1993 completion.

- 3) PROJECT: Jilbo in Denbel, Sarkama
 LOCATION: 45 km southwest of Dire Dawa
 DATES: Start-February 1993 - Finish-September 1993
 WORKS: Two diversion weirs, and two stabilized canals 3000 meters in total.
 IRRIGATION AREA: 70 hectares with a potential to supply additional water to an existing 800 hectare perimeter down stream.
 BENEFICIARY HOUSEHOLDS: 100
 WORKERS PER DAY: 375
 OFDA PARTICIPATION: \$50,000

BACKGROUND: The Gurgura population in this area was dislocated during the Somalia-Ethiopia war and was prevented from returning until recently because the area was declared a military reserve under the former regime. LWF was the implementing agency for relief in this area and has remained active in promoting infrastructure development. There are two other irrigation projects down stream of Jilbo, Sarkama completed by LWF in 1989 and Hurso completed in 1992. The earlier project has already provided the users with a sizable increase in per capita income.

OBSERVATIONS: The spring fed river that will supply the irrigation water has a steep drop with a ten meter waterfall just up stream of the first diversion weir. Its flow is considerable at over 1,000 liters per second during the dry season. The high flow rate and steep drops of the river provide a potential for additional irrigated agriculture which can support a larger population than is presently settled there and can produce food surpluses that can be marketed in Dire Dawa and Harar.

- 4) PROJECT: Germam
 LOCATION: 40 km west of Dire Dawa
 DATES: Start-January 1993 - Finish-December 1993
 WORKS: River diversion weir, earth dam, and stabilized canal of 4000 meters.
 IRRIGATION AREA: 50 hectares
 BENEFICIARY HOUSEHOLDS: 170 of which 50 are pastoralist Issa.
 WORKERS PER DAY: 600
 OFDA PARTICIPATION: \$60,000
 BACKGROUND: Germam was one of the early LWF irrigation development projects that grew out of relief operations for the Gurgura who returned from Somalia in 1985. The irrigation project was completed in 1988 and now serves over 150 households. The surrounding hills have been terraced and planted. The current project extends the irrigated perimeter to provide additional land for the current population and agricultural opportunities for new arrivals. One objective of the project is to provide irrigated pasture for the pastoralist Issa thereby encouraging them to settle in the surrounding area and take up agriculture as a adjunct activity for their own food security.

OBSERVATIONS: Six years of water availability have made for a remarkable change in an otherwise highly eroded and barren landscape. Trees planted along the roads, fields and canals are over ten meters tall and provide ample shade and fertile micro climates. This is a good demonstration of how effective appropriately scaled integrated land reclamation projects can be. The extension of the Germam irrigated perimeter will use an earth dam constructed some distance from the river and fed by a canal to capture some of the water that roars by in great quantity during flash floods. At the time of our visit the diversion weir had been completed as well as the first section of canal which was built with four meter high masonry walls along the river to prevent wash out during floods. The dam construction was just under way.

B. Africare Small-Scale Irrigation (Earth Dams)

OBJECTIVE: To develop low technology irrigation systems by raising water from an existing dam some 15 meters up to a storage tank where gravity can deliver it to the fields.¹ To provide water for backyard gardening, livestock and domestic consumption by drilling three bore wells equipped with hand pumps.²

The grant states that the project will provide infrastructure that can support the year-round delivery of water and production of food to sustain life, thereby ensuring basic nutrition and lowering the incidence of water borne diseases.

The project will place 30 hectares of land under year-round irrigated agriculture, which will allow for 180 families to cultivate two-four crops annually on 1/16 hectare each (the average family holding ranges from 1 to 1.5 hectares). The estimated total annual yield is 244.8 Mts.

The three village wells will:

- allow 1,500 families to cultivate family gardens;
- increase food production level and improve local diet.

The estimated production level for family gardens is 100 kgs per family annually. The increase in food production will permit surplus food to be sold or bartered for other household and personal requirements.

¹The original design was substantially altered and the site changed during implementation. The objectives are presented here as originally proposed, followed later by the observed organization of the project as implemented.

²The three wells were not built. Instead, Africare supplied pumps to existing wells and improved an community water supply project in another town: Abiy Adi. The Abiy Adi project is reviewed separately in the next section.

Improved water availability will:

- help reduce the incidence of water-borne diseases;
- free women and children from time needed to collect domestic use water;
- provide livestock with a closer access to water.

Water use training, seeds and tools provided by the project to villagers will enable them to adopt and implement improved, irrigated farming practices.

The direct beneficiaries of the project will be:

- the 540 family members (average three persons per family) of the 180 farm families to cultivate the 30 hectare irrigated agricultural perimeter;
- the estimated 4,500 family members whose backyard vegetable gardening and small animals will benefit from new well water availability;
- the entire 13,258 population of Wukro that will use water from the three new wells for meeting domestic needs.

OBSERVED ORGANIZATION: The two dams constructed as part of the FMA grant were much different and probably more appropriate as mitigation activities than the pumped irrigation scheme first proposed.

The original Africare proposal was extensively revised when it was found upon technical investigation that the Wukro dam site was not suitable for the pumped irrigation scheme. This was because of the extensive siltation of the reservoir and the poor water holding capacity of the underlying soils. Additionally, the three proposed boreholes were eliminated when the Government of Ethiopia (GOE) drilled two wells in the same area. The revised Africare project includes two earth dams north of the Wukro site, two submersible electric pumps installed in the GOE drilled wells, and the extension of a spring fed potable water supply system for the town of Abiy Adi situated some 120 kilometers west of Mekele.

The Africare earth dam project sites using OFDA funding are:

- 1) PROJECT: Tsenkanite
LOCATION: 45 km north of Wukro
DATES: Start-March 1993 - Finish-August 1993
WORKS: Earth dam with outflow pipe at the base.
IRRIGATION AREA: 40 Hectares
BENEFICIARY HOUSEHOLDS: 100
WORKERS PER DAY: 800
OFDA PARTICIPATION: \$70,000

BACKGROUND: The Irrigation Development Division of the MOA in collaboration with the Ministry of Natural Resources Development and Environmental Protection has developed a list of over 60 potential retention dam sites for the Tigray Region. The two dams built with Africare support under the

FMA grant come from this list. The Tsenkanite dam has been situated between two small hills in a major drainage of a valley just to the west of Tsenkanite town. The dam is designed to hold about 150,00 cubic meters of rainy season runoff water for dry season irrigation and, during low rain fall years, for the supplemental irrigation of crops that would otherwise fail due to lack of sufficient moisture. Tigray is a drought prone region with relatively high population densities and major erosion problems. The people of Tigray fought the former national government for autonomy from 1974 until its downfall in 1990. As a result, the infrastructure of roads and water management schemes is very underdeveloped. However a lot of work is currently being done to improve essential infrastructures thanks to the widespread participation of the local people and the support of the Tigray dominated national government.

OBSERVATIONS: The dam measures ten meters in height with MOA standard proportions for slope and overflow channels. Because a large part of the upper watershed has not yet been treated with terraces, erosion continues to be a problem. It is expected that the reservoir will lose about 30% of its potential water holding capacity to siltation. Another 20% of stored water will be lost to evaporation and ditch losses which will leave about 85,000 cubic meters of available irrigation water. Fully irrigated, most crops require 7,000 to 10,000 liters of water per hectare. At the time of our visit the dam was nearing completion and was almost completely faced in stone on its upstream side and crest. The canal system, which is the responsibility of the MOA and not a part of the FMA/Africare project, is not yet under construction.

- 2) PROJECT: Adi Abage
 LOCATION: 30 km north of Wukro
 DATES: Start-March 1993 - Finish-September 1993
 WORKS: Earth dam with outflow pipe at the base.
 IRRIGATION AREA: 50 hectares
 BENEFICIARY HOUSEHOLDS: 125
 WORKERS PER DAY: 800
 OFDA PARTICIPATION: \$70,000

BACKGROUND: The selection of Adi Abage, like Tsenkanite, is based on technical feasibility and on the ability of the local population to supply the necessary labor. Once the MOA has decided to implement the project the local farmers associations concerned are contacted and asked if they will be willing to work on the project. Though both dams began without a food for work component, the RRC, which is in charge of relief food distribution, soon decided to distribute food as an incentive to the dam workers beginning at the rate of one kilogram of grain per person per day and increasing to the current seven kilograms per person per day which is roughly equivalent to the standard day labor wage of eight Birr.

OBSERVATIONS: At the time of the visit there were hundreds of people carrying out various tasks including the final compaction process in which groups of 50 men danced in unison in a circular fashion on the most recently placed layer of earth. This they did with much clapping and singing while a constant stream of women lugged sacks filled with earth on their backs from the borrow pit 400 meters away up the ten meter slope of the dam for the next layer. The overflow channel measuring about 30 meters wide and 60 meters long must be dug through rock and this will delay the completion by a month.

C. Africare Small-Scale Irrigation (Water Supply)

OBSERVED ORGANIZATION: Both the furniture of submersible electric pumps to the Wukro town water system and the expansion of the Abiy Adi water system were not in the original OFDA approved Africare proposal. Both projects appear to have been designed and built according to the standards of the Ethiopian Department of Water Works.

The Africare household water supply project sites using OFDA funding are:

- 1) PROJECT: Wukro wells
 LOCATION: 60 km north of Mekele
 DATES: Start-June 1993 - Finish-August 1993
 WORKS: Installation of two submersible electric pumps, and water mains from the reservoir to the wells.
 BENEFICIARY HOUSEHOLDS: Wukro town
 WORKERS PER DAY: N/A
 OFDA PARTICIPATION: \$25,000

BACKGROUND: Because the water supply for Wukro was critically low the GOE Department of Water Works drilled two wells at the north edge of town but could not furnish them with pumps for lack of funds. Africare agreed to install the pumps and to connect the new wells to the existing reservoir, which it did. The pumps for Wukro were sized to a standard yield test.

OBSERVATIONS: The pumps are installed. The main supply lines are laid except in one place where the trench has too sharp a bend. The power lines to the pumps should be connected soon.

- 2) PROJECT: Abiy Adi
 LOCATION: 120 km west of Mekele
 DATES: Start-April 1993 - Finish-August 1993
 WORKS: 50,000 liter reservoir, four multi-faucet stand pipes, main and connecting lines.
 BENEFICIARY HOUSEHOLDS: Abiy Adi town
 WORKERS PER DAY: N/A
 OFDA PARTICIPATION: \$35,000

BACKGROUND: Abiy Adi which means "big town" was a center of Tigraian resistance during the prolonged conflict with the former regime. It is the current president's home town. The water supply for the town comes from a spring about three kilometers from the town. Africare was asked to improve the existing water distribution network to provide more water points within the town and a larger reservoir for the system.

OBSERVATIONS: The additional water points have been constructed and the 50 cubic meter reservoir has just been roofed and connected to the pumping station. The standpipes for Abiy Adi are of standard design and the supply to the reservoir is a dedicated line. The reception tank for the supply line from the spring is a main water access point for people living in the immediate area and from settlements surrounding the town. This high demand condition may warrant the installation next to the tank of an improved water point with multiple faucets.

D. Africare Vegetable Troughs Program

OBJECTIVE: To develop an alternative gardening system in which vegetable troughs supplement low producing, degraded land, strengthening the ability of the community to survive drought by providing more efficient (less water and labor intensive) methods for irrigation and vegetable production.

The grant specifies that the project will introduce a backyard gardening technique that:

- uses up to 80% less water;
- can out-yeild conventional methods of cultivation by up to 300%;
- requires minimal labor;
- permits three-four plantings annually, thereby ensuring year-round food for nutritional needs even in times of drought, and providing a source of cash income.

Because of the high productivity of the troughs, it is anticipated that they will be adapted commercially to provide cash. Other direct benefits to people from food produced will be improved nutritional status and cash earnings to meet other basic needs from sale of surpluses, and increased self-reliance of the participants.

Use of vegetable troughs could potentially reduce the number of people requiring relief assistance. Improved water availability from several bore wells also provided under the project will:

- reduce incidence of water borne diseases;
- free women and children from time needed to collect domestic use water.

Direct beneficiaries are the 40 families/farmers cultivating in the troughs. Indirect beneficiaries are other village inhabitants (36,000) who will benefit from wells constructed and greater availability of food produced.

Africare, the community, and the GOE will contribute 55% of total project inputs: drilling equipment and supplies, technical staff, and training in operating and maintenance; transportation of materials to site, labor to construct troughs and wells, and cultivation of vegetables. The MOA will provide technical assistance, and agronomists and extension agents, to oversee construction of the troughs and train farmers to use and cultivate in the troughs.

OBSERVED ORGANIZATION: A Vegetable Trough (VT) is an above ground (some VTs visited were partially submerged below ground), stone or cement block structure with a sloped cement floor to convey water drainage through holes along the walls. It is suitable for vegetable, herb, fruit, flower and woody plant production and can be used as a nursery. It can also be constructed with locally available construction material like clay, manure and pumice which can reduce construction and transportation costs.

Each VT contains an intensive hydroponic growing medium consisting of a bottom layer of river bank sand (spread throughout trough), followed by a layer of well rotted manure (spread throughout trough), with a top layer mixture of sand and manure. It uses up to 80% less moisture than conventional irrigation and three to four harvests per year can be achieved depending on species and cultivar.

Individual sites for Africare vegetable troughs:

1) PROJECT: Africare Vegetable Troughs
LOCATIONS:

1. Eastern Shewa 14 sites
 - a. Wellenchith - 3
 - b. Nazareth - 10
 - c. Sheklla Fabrica - 1
2. Northern Shewa 2 sites at Debre Brahane
3. Southern Shewa 7 sites
 - a. Dollocha - 3
 - b. Alem Tena - 4
4. Addis Ababa 4 sites for Destitute Women

DATES: Start-March 1993 - Finish-September 1993

BENEFICIARIES: The number of affected households in the worst and best case scenarios can range between 27 households (135 people) to as many as 2,000 households (54,000 people).

STATUS: Vegetable Trough construction work was completed at all sites visited although few were in full production.

OFDA PARTICIPATION: \$55,825

BACKGROUND: Twenty-two of the 27 Africare VT sites completed were visited and 42 sites are proposed in the current OFDA/FMA grant. VTs can be constructed and made operational quickly. The average construction time for VTs is four to five days. Seedlings are available from the MOA and can be transplanted immediately. The average VT construction cost, based on the standard size of 1.60m width, by 8m length and .60m height, is 2,260 Birr or 441 US Dollars.

OBSERVATIONS: Some key sites in Shewa region included 1) the village community of Dollocha with a population of 7,000-8,000 Muslim and Christian Oromo people who are mixed farmers, 2) the Town of Alem-Tena with a population of 27,000 people, and 3) the small city of Nazareth with 60,000 people. In Dollocha the VT was constructed with the aid of village women and was installed for demonstration near a frequently used water point with four taps.

In Alem-Tena the VTs are being used essentially by market gardeners along with conventional backyard gardens. An elderly women gardener, Woleta Haille, was enthusiastic about the pepper plants in the VT which were bigger than the peppers in her conventional garden planted at the same time. The woman MOA extension agent, Genet Yewunetu visits the early adopter VT gardeners two to three times a week.

In Nazareth, the MOA extension agent Lema Abeba, with his own compound VT, demonstrates the diversity of crops that are possible. He works with VT users that have never gardened and is working with agricultural students at the local high school that has recently constructed a VT.

The sites in Debre Brahane at an altitude of 2,600m, one of the highest elevations in Shewa region, represents another test for adopting Vts in Ethiopia. Overall, each site has unique circumstances related to cultural preferences which contribute to design changes in standard troughs. For example, the double wide troughs observed at several Nazareth sites fit the needs of Ethiopian women gardeners who prefer to work from a squatting position. These women are important targets of the project.

E. Feed My People International/Nazareth Children's Center and Integrated Development (FMPI/NACID) Emergency Seed Bank Project

OBJECTIVE: To improve the food security of households and communities by increasing their capacity to store buffer stocks of quality seed and to ensure the conservation of drought-resistant and local crop species needed to maintain traditional food production.

The grant specifies that the project will construct two seed storage facilities and two cleaning sheds and will create a revolving source for distributing seeds. It also states that utilizing cleaning equipment increases harvest by 25%.

Beneficiaries are 1,500 farm families who receive seeds. Average household size is estimated at five people, total estimated beneficiaries is 7,500 people during first cultivation cycle.

OBSERVED ORGANIZATION: The seed bank facilities are cinder block warehouses in which seeds can be stored and disbursed. The seed banks are supported by active seed bank and Revolving Loan Fund (RLF) committees that include women and representation at the Tabia or village level. The members decide on types and quantity of seed and how seed should be allocated. The RLF is operational and supported by a RLF committee composed of district government representatives, district MOA seed and agronomy specialists, Peasant Association representatives, Women In Development agents, and female and male MOA development agents working directly with farmers. Individual farmers sign for seed loans witnessed and co-signed by each committee member. In principle the farmer borrowers have a community obligation to repay the loans and can be reprimanded by the community for defaulting. Defaulting can occur from a drought year, poor health or death, and the expected default percentage is 10-20%.

The two FMPI/NACID seed banks funded by OFDA are described below:

PROJECT: FMPI/NACID Emergency Seed Bank (ESB) Project Sites at Gantafeshum and Bezet Woredas in north central Tigray.

LOCATION: The Gantafeshum ESB site is in Adigrat, and the Bezet ESB site is 35 km north of Adigrat near the border of Eritrea.

DATES: Start March 1993 - End December 1993

DESCRIPTION: Each of the two ESB warehouse will have a storage capacity of 150 mt, and the dimensions are 10x15m and 380x2m.

BENEFICIARIES: The number of drought affected households participating in the project includes families of 100 farmers, 500 people and families of 1,927 seed producers or 9,635 people for a total of 10,135 direct and indirect beneficiaries.

60 workers, (30 per site) selected from each woreda, work daily without Food For Work payments.

OFDA PARTICIPATION: \$200,000

BACKGROUND: The project is progressing as outlined in FMPI/NACID's proposal. One site was changed to Bezet because the original location, close to the Eritrea border, was difficult to reach and relies more on trading than agriculture. Because of delays in funding, FMPI/NACID rented two temporary warehouses to store seeds and tools during the initial distribution.

OBSERVATIONS: Tigray is currently experiencing the best rainfall conditions in 16-25 years; yet, the rains remain erratic both spatially and temporally. Seeds and tools are currently being purchased and distributed. FMPI/NACID provided an overview with supporting records showing percentage breakdown of crops grown in the Tabias or villages of the Gantafeshum and Bezet Woredas. The major seeds distributed, based on project farmer preferences, included the grain legume horsebean, wheat, mixed barley-wheat and barley. In Gantafeshum 409Q (1 Quintal = 100 kg) of horsebean was purchased, 209Q distributed; 571Q of wheat purchased, 82.5Q distributed; 60.31Q of barley purchased, 56.5Q distributed. Tools distributed included ploughs and shares, pick-axes, shovels and three-finger hoes. Tool purchases were made in Addis Ababa, only wheat seed was purchased outside of Tigray.

Unfortunately, there were no opportunities to observe the production activities of seed producers working with contact farmers or development agents in seed production situations. This severely limited the verification of quality and quantity of productive assets such as oxen, tools, seeds, watershed, and soil moisture conditions in the seed producing areas of Gantafeshum and Bezet. Instead, observations and monitoring assessments were based on information reported in interviews and discussions with FMPI/NACID staff, farmers and MOA development agents. In addition, no representatives of the Ethiopian Seed Corporation (ESC) were present.

F. CARE Vet Scout Project

OBJECTIVE: To improve veterinary services and livestock management for the pastoralists of the Borana region through the provision of technical and management training to Vet Scouts from participating Peasant Associations. Each Vet Scout is supplied with medicines and equipment.

The Grant specifies that the Project objectives are to:

- train selected community members to look after the basic veterinary needs of the livestock population of the region;
- improve the supply of basic veterinary drugs available in the Borana Region;
- assist the local communities in setting up their own sustainable and replicable veterinary health care program.

Improved livestock management will produce an increase in food security for the villagers and help mitigate negative effects of seasonal and environmental changes upon food security in the semi-arid region.

The immediate beneficiaries are the 46,000 Borana pastoralists living in the Dire and Yabello/Teltele Awrajas of southern Ethiopia. The Borana people are pastoralists and almost completely dependent on livestock for food and economic opportunities. Livestock supply the subsistence basics of milk, blood and meat. Livestock and milk are sold to buy grain, mainly maize, to supplement their diets especially during dry season when milk production is low.

OBSERVED ORGANIZATION: Vet Scout training was completed in March 1993 as proposed. Sixteen Vet Scouts were trained by the Southern Rangeland Development Unit (SORDU) office in Yabello, Borana. Vet Scouts have returned to their villages and are anxiously awaiting the arrival of their medical kits. CARE is supplying basic veterinarian supplies and drugs for treating livestock, while SORDU is to provide veterinarian services and vaccinations for diseases. CARE's drug procurement was delayed due to difficulties in finding a supplier who could obtain drugs meeting the specifications of the MOA.

The Vet Scouts are already identifying diseases and requesting appropriate assistance from SORDU. All villages visited reported outbreaks of Blackleg, Anthrax, CCPP and the suspicion of Rinderpest. Ticks and internal parasites are also of concern. This is a good grass production year resulting in good overall appearance in animals observed. The Vet Scout Program is supported by other CARE activities such as haymaking and water improvements. This provides a more integrated approach in addressing the overall welfare of the Borana livestock and people.

The individual CARE Vet Scout posts visited are:

- 1) PROJECT: Ollo Areri Peasant Association
 LOCATION: Approximately 20 Km northwest of Yabello, Borana
 DATES: Start - March 1993 - Finish December 1994 (all sites).
 WORKS AND ACTIVITY: Vet Scout trained and identifying diseases while awaiting for medical kits from CARE and vaccines from SORDU.
 BENEFICIARIES: Approximately 4000 people and approximately 2600 head of cattle.
 OFDA PARTICIPATION: Training of Vet Scouts \$340 per Scout. Cost of medical supplies and drugs to be determined when project terminates. This applies to all sites visited. Total project funding is \$113,853.

BACKGROUND: The Borana Region was severely affected by the drought of 1990-1992 and by civil strife and conflict. This resulted in the loss of 80% of the livestock. The remaining animals were in poor physical condition and sold for ten Birr per animal (\$2.00 US). This forced some displacement of the people and continued hardship. The Borana are beginning to recover and rebuild cattle numbers. They want to vaccinate their cattle soon as possible to ensure healthier animals and people.

OBSERVATIONS: A Vet Scout has been trained and has requested vaccines from SORDU to treat Blackleg, Anthrax and parasites. The village people are very excited and enthused about the Vet Scout Program. CARE has excellent relations with this village. Water sources are in need throughout Borana. The area is dry and few water sites exist.

- 2) PROJECT: Ollo Igo Peasant Association
 LOCATION: 12 Km north west of Dubuluk, Borana.
 WORKS and ACTIVITY: Vet Scout trained and identifying diseases while awaiting for medical kits from CARE.
 BENEFICIARIES: Approximately 6000 people.

OBSERVATIONS: Vet Scout has identified diseased animals in the various villages with the Peasant Association. He requested assistance from SORDU and this resulted in 5600 animals being vaccinated for Blackleg, Anthrax and Rinderpest. Three village herds were apparently treated. SORDU has been more responsive in assisting the Igo village than in other locations visited. The community pays five Birr a day as incentive to the Vet Scout. The community seems very supportive of the Vet Scout and depend on his leadership. Haymaking and water development were observed. A Traditional water well was in use.

- 3) PROJECT: Ollo Kotile Peasant Association
 LOCATION: 20 km east of Dubuluk, Borana.
 WORKS AND ACTIVITY: Vet Scout trained and identifying diseases while awaiting for medical kits from CARE and vaccines from SORDU.
 BENEFICIARIES: Approximately 3000 people will be affected.

OBSERVATIONS: No vaccinations have occurred because of the lack of vaccines. The Vet Scout has identified Anthrax, Blackleg, and Rinderpest as main diseases. Five thousand animals are affected. Gravity flow water catchment cisterns have been developed for use by people and calves. The cisterns are constructed of cement and are an excellent example of low-cost technology that could be easily replicated.

- 4) PROJECT: Ollo Medacho Peasant Association
 LOCATION: 25 miles south of Dubuluk, Borana.
 WORK AND ACTIVITY: Vet Scout trained and identifying diseases while awaiting for medical kits from CARE and vaccines from SORDU.
 BENEFICIARIES: 5600 animals affected and an estimated 5500 people.
 OBSERVATIONS: There is an operating traditional well in the Medacho Crater. Approximately 600 cattle plus goats, donkeys, sheep and camels water each day. Cattle water every three-five days, at this location.

V. EFFICIENCY, EFFECTIVENESS AND IMPACT OF GRANT PROGRAM ACTIVITIES

Efficiency and impacts of each of the grant activities are addressed by these seven questions:

- 1) What is working and what is not working in the project?
- 2) Is the project on schedule (time and costs) and likely to achieve expected results?
- 3) How are problems being dealt with?
- 4) Are assumptions made still valid/any new assumptions?
- 5) What are lessons learned to date?
- 6) Is the project going to contribute to the goal of saving lives and protecting economic assets.
- 7) Will the results be sustainable?

A. Lutheran World Federation Soil and Water Conservation Design, Management and Technical Issues

1) Spring and river diversions are in themselves the best type of water source development for supplying an irrigated perimeter year round. The LWF projects concentrate on the most promising water points to produce projects that have a very high return on investment. A typical project that costs \$200,000 and provides irrigation water for 50 hectares has the potential of producing \$300,000 of income per year based on \$6,000 of marketable produce per hectare from two harvests, the third harvest being reserved for family consumption.

In addition to high profitability the irrigation projects are one of the best ways of providing farmers in drought prone areas with a reliable means of overcoming their dangerous reliance on rain fed agriculture. This is a most effective drought mitigation activity that builds on current practice and provides a sustainable means of survival and income generation to a large number of people, many of whom have been displaced and destitute for over 15 years. LWF plans to be active in the Hararghe region for at least the next 10 years implementing irrigation projects, and they will be available to give technical advice on system maintenance and improved irrigation techniques to the users of the irrigated perimeters already in operation. This is very important because of the current lack of reliable MOA assistance to local farmers due to the current regional political restructuring.

2) The projects are on schedule and are likely to achieve their stated objectives within budget.

3) Among possible problems are the water logging and salinization of soils within the irrigated perimeter, disputes over land use rights, and system breakdowns due to lack of maintenance and repair. However, because of the long term commitment of LWF to the region the capacity exists to address such problems before they become critical.

4) This is a tried and true program that uses food for work as a means for helping people move from relief to self-reliance.

5) All components necessary for project success are present in the design and implementation. In addition to water works, LWF provides seeds and tools and agricultural extension. In some sites the projects also included terracing and tree planting. Each project includes one year of follow-up monitoring before being turned over to the local population for on-going operation and maintenance.

6) The projects prevent population displacement by providing a stable agricultural environment. In some cases the projects act as magnets to attract settlement. In the arid environment of Hararghe, irrigated perimeters buffer the impacts of droughts. A reliable water supply assures continuous agricultural production and therefore food security. Projects are identified and requested by the local population. Projects often improve upon or extend existing community operated irrigation schemes. The construction phase includes training of local people in masonry, canal maintenance, irrigation and planting techniques and irrigation scheduling.

7) Strong local participation in the project at every phase leads to full community ownership of the project. The community continues to operate the project unaided after LWF withdraws from the site. The longest running project in the area has been in operation since 1986.

Table 1

Famine Mitigation Criteria Rating (Scale of 1 to 5, 5 highest)	
LWF Soil and Water Conservation	
Indicator	Rating
Low-Cost ¹	3
Large People Impact	4
Measurable Impact	5
Quick Implementation	4
Replicable ²	4
Capacity Building	5
Prevents Displacement	5
Prevents Loss of Assets	4
Reduces Recovery Time	5
Enhances Coping Strategies	5

¹As this project is a construction project, there are initial capital costs for materials and equipment which are recoverable over two to three years of crop production.

²Replicability usually implies little or no cost. In this case some technical and material assistance is necessary.

B. Africare Small-Scale Irrigation (Earth Dams) Design, Management and Technical Issues

1) Irrigated perimeters, especially gravity fed ones, are good famine mitigation interventions. They usually have a low-cost per beneficiary served. They help a lot of people overcome the dangers of relying solely on rain fed agriculture. They are labor intensive and use mostly local materials. They are easily maintained. And the value of the crops produced on the irrigated land can equal and surpass the cost of the system in one to two years.

There are several drawbacks to the dams built by Africare. They are built across the drainages of watersheds that have untreated erosion problems which will result in some silting of the dam reservoirs. Because they rely on run off water for supply, the reservoirs can only store enough water to grow one additional crop in years of average rain fall, and only supplemental irrigation to the rain fed crop during years of low rainfall. Silting, evaporation, and ditch losses can reduce the amount of available irrigation water by 50% which will allow the effective irrigation of only ten hectares or less per dam. And because Africare is involved only in the construction of the dam, the completion of the canals and irrigated perimeter will be the sole responsibility of the MOA which is currently strapped for funds.

2) The construction of the dams, which is the extent of Africare involvement, is on schedule, but the completion date of successful irrigation projects by the MOA is uncertain.

3) Despite these drawbacks the dams should still help some farmers increase their productivity and decrease their vulnerability to drought. Given an environment poor in available water resources, the run off retention dams are one of the best ways to access more water for agriculture. And given the still significant food deficit condition of many people, projects like the dams that create much needed infrastructure are an effective way of using food for work to improve the self reliance of the hard working people of Tigray. The MOA with the Ministry of Environment has already identified more that 60 potential dam sites which it hopes to develop in the near future. Based on current experiences and lessons learned about treating watersheds before building dams, coming projects should be increasingly successful.

4) It is uncertain whether the actual storage capacity of the reservoirs will provide full irrigation for more than eight to ten hectares after calculating losses for siltation, evaporation, and delivery.

5) In both cases the dams have been constructed out-of-sequence before the up stream watershed has been thoroughly treated to prevent erosion and down stream siltation. This situation illustrates what happens when a project is not seen in relation

to the various elements that influence its performance. The dam project should be seen as part of an integrated watershed management program rather than as a discrete intervention.

6) Soil and water conservation and management projects are one of the best ways of preserving the environment and arable land, an important productive asset. Even if the dams silt up so that they cannot provide direct irrigation water they will still be useful in holding soil and recharging the ground water around the dam site.

7) Africare's participation in these projects ends with construction of the dams. The MOA is responsible for constructing canals and maintenance of the systems. If the MOA is unable to provide these, the systems may not be sustainable.

Table 2

Famine Mitigation Criteria Rating (Scale of 1 to 5, 5 highest)	
Africare Small-Scale Irrigation (Earth Dams)	
Indicator	Rating
Low-Cost ¹	3
Large People Impact	4
Measurable Impact	3
Quick Implementation	4
Replicable ²	3
Capacity Building	3
Prevents Displacement	3
Prevents Loss of Assets	3
Reduces Recovery Time	5
Enhances Coping Strategies	3

¹As this project is a construction project, there are initial capital costs for materials and equipment which are recoverable over two to three years of crop production.

²Replicability usually implies little or no cost. In this case some technical and material assistance is necessary.

C. Africare Small-Scale Irrigation (Water Supply) Design, Management and Technical Issues

1) Both projects will positively affect the populations of their respective towns. The skills required to implement the projects are specialized and not labor intensive. The projects will not appreciably build a local capacity to duplicate them. They are the type of intervention normally carried out by the GOE Water Works Development Department.

- 2) Both projects are on schedule and should be completed on time.
- 3) No major problems have been encountered by either project.
- 4) These projects are not directly related to food security or famine mitigation.
- 5) The FMA project criteria should be clearly understood by grant applicants, and any project change requests should be thoroughly reviewed to assure that they fall within FMA guidelines.
- 6) Though the need for more potable water is certainly great in Wukro town and to a lesser extent in Abiy Adi, these two projects do not directly address famine mitigation or food security needs.

Table 3

Famine Mitigation Criteria Rating (Scale of 1 to 5, 5 highest)	
Africare Small-Scale Irrigation (Community Water Supply)	
Indicator	Rating
Low-Cost ¹	2
Large People Impact	4
Measurable Impact	4
Quick Implementation	4
Replicable ²	3
Capacity Building	2
Prevents Displacement	4
Prevents Loss of Assets	3
Reduces Recovery Time	5
Enhances Coping Strategies	2

¹As this project is a construction project, there are initial capital costs for materials and equipment which are recoverable over ten years of user fees.

²Replicability usually implies little or no cost. In this case some technical and material assistance is necessary.

D. Africare Vegetable Troughs Project

1) Vegetable Troughs (VT) can be adapted to cultural and local preferences and are applicable to a wide range of geographical settings: villages, rural towns, large towns and urban communities. Alternative materials can be substituted to lower construction costs for individual households depending on locally available resources. This, however, has not been demonstrated,

nor is it being pursued by the project. VTs are easy and quick to construct and can be utilized in areas of low fertility. Africare has developed a user friendly evaluation and monitoring instrument for households using vegetable troughs.

However, individual low income households will find construction costs prohibitive in the absence of Africare's inputs or a community fund raising scheme which spreads costs. The traditional Ethiopian diet for low income groups has little or no mineral, vitamin or protein derived from vegetables or fruit. This causes a low cultural acceptance of rural and urban poor for assorted vegetables and makes the troughs more appropriate for income generation than for increasing nutrition. There is also a lack of experience by urban and rural gardeners in growing a wide range of nutritious vegetables, (okra, beets, sweet potato, squash, broccoli and assorted legumes).

While VTs use 80% less water, the remaining 20% must be available on a continuous basis. This creates a bias against rural communities lacking a steady supply of water during dry season. Overcoming production constraints not limited to water is also important, especially to ensure success in the early stage of the VT adoption process. Observed at many of the VT sites was a need to improve management in tomato pruning, transplanting at the right stage, mulching to provide moisture for germinating seed at the surface of the soil medium, companion cropping, and low-cost homemade soapy herb solutions to reduce insect damage. Marigolds and other insect inhibitor flowers and plants available in Ethiopia should be propagated in the VTs to control insects. Extension efforts should also be followed-up with seed and garden packs which include "How to" fact sheets written in the local language.

Only disease resistant seed that has approval from the ESC should be purchased and distributed by the project to avoid harmful varieties being introduced into Ethiopia. Currently there is no systematic plan or mechanism in place to supply disease resistance and high germinating vegetable seed to extension workers and VT gardeners. Improved seed and vegetable storage are other important areas for extension and outreach activities.

Based on a follow-up conversation with Ato Mamo Mulat, the MOA advisor working with Africare, VTs are currently viewed only as a supplement to grain crop and animal production in the famine mitigation process. He expressed an interest for monitoring how long crops could survive in the VTs without rainfall in dryland areas. He also felt the income generation gained from VTs was more suited to urban gardeners where consumer demand for vegetables existed, and where transport and storage requirements were lower.

2) Twenty seven out of 42 proposed VTs are completed. Construction has taken longer than anticipated due to site selection and requests from farmers. The estimated production rate of 5,578 kg of vegetables per family specified in the

proposal does not seem achievable. The actual cost of each VT is somewhat less than originally proposed. Excess funds should be used to purchase drought and pest resistant seeds for distribution to beneficiaries.

3) The VTs are a new technology in Ethiopia and this is a pilot activity. The only problem to date is the hesitancy of farmers to try the VTs and the new vegetables. Initial VTs have been constructed for Extension Agents and progressive farmers to demonstrate their capacity and to solicit interest on the part of poorer farmers. In at least two of the sites, seedlings from the same MOA source have been planted in VTs and into the adjacent garden plots. The superior growth rate of plants in the VTs is already apparent and noticed by beneficiaries and other farmers. Materials, size and designs are adapted to fit conditions for each individual VT site.

4) The key assumption is that the beneficiaries will eat the types of vegetables produced in VTs. Thus far, the preference is for vegetables such as lettuce that can be marketed. VTs are also better suited for urban gardeners than rural farmers than originally assumed. Another assumption is that a continuous supply of water will be available and provided for the troughs.

5) As this is a pilot activity, Africare and MOA agents are experimenting with size and designs and with types of vegetables to produce in the VTs. Their findings to date are that tomatoes, peppers, onions, local cabbage, sweet potatoes, lettuce and beets grow well in the troughs. Carrots were tried but produced larger tops than root material. Beneficiaries' willingness to change the design of their troughs is also a promising sign of adoption.

6) VTs will contribute to enhancing incomes as most beneficiaries are choosing to plant cash crops. They can also facilitate recovery from drought as they can be planted at any time and produce more quickly than ground plots. If traditional grain crops fail, beneficiaries will have this source of food as a coping mechanism.

7) Once constructed VTs will last 10-15 years with little maintenance (the sand and manure layers may need replacement annually). Farmers will have use of the VTs as access to land becomes more limited due to population and environmental pressures.

Table 4

Famine Mitigation Criteria Rating (Scale of 1 to 5, 5 highest)	
Africare Vegetable Troughs	
Indicator	Rating
Low-Cost	3.5
Large People Impact	3.5
Measurable Impact	4
Quick Implementation	4.5
Replicable	5 ¹
Capacity Building	4.25
Prevents Displacement	3.75
Prevents Loss of Assets	5
Reduces Recovery Time	4
Enhances Coping Strategies	4

¹Replicability rating assumes that external funding is available. For vegetable troughs to be replicated by the beneficiaries with minimal outside help, they should be redesigned using locally available low-cost materials.

E. FMPI/NACID Emergency Seed Bank Project Design, Management and Technical Issues

1) The project encourages local community involvement through its seed bank and revolving fund committees. Women association chairpersons and women in development cadres are members of 15 seed bank committees which represent eight Peasant Associations in Gantafeshum and seven Peasant Associations in Bezet. FMPI/NACID has developed a two-way communications channel between project staff and farmers to select preferred seeds of barley and horsebean. Contracted farmers will produce seed in the first phase of the project.

FMPI/NACID is working with the MOA field staff to provide improved production practices, and with the ESC to provide technical assistance in seed selection and cleaning, processing skills and an emergency supply of drought tolerant seed.

Distribution of inputs to enhance the project farmers' productive assets are underway by FMPI/NACID and include tools like a) plow and shares, hoes, pickaxes and shovels and seeds b) barley, mixed wheat/barley, wheat seed and horsebeans.

The community expressed interest in extending the ESB to Emergency Seed Bank Centers which would include seed demonstration areas for cereals, oils seeds and pulses, forages, and nurseries for adaptable tree and fruit species.

A potential problem for the project is the lack of rainfall and irrigation water to ensure production of locally adaptable seed cultivars by project farmers to build the ESB seed stocks. Farmers stated that only one out of five years is productive. FMPI/NACID project staff were unfamiliar with faster maturing barley cultivars needed in erratic rainfall area.

The second major problem is the lack of oxen for plowing the fields. Originally, FMPI/NACID had plans of using other donor contributions for oxen distribution but has been unable to secure funding.

There is a plan to purchase contingency supplies of local cultivars in the surplus growing woredas of western Tigray or from the quasi government Relief Society of Tigray, (REST). FMPI/NACID is aware that they must order seed months in advance from the ESC. These seem to be adequate contingencies. However, if FMPI/NACID fails to get the integrated input support underway soon, the ESB project will be dependent on outside resources and won't be internally sustainable nor build local capacities.

2) The project is progressing as proposed. Seeds and tools distribution is underway. At both ESB sites, construction of the foundations of the warehouses are nearly completed with dug trenches filled with rock. After a heavy rainfall at the Bezet ESB site, extensive areas of standing water was observed which may be an indicator of poor drainage at the site. Good seed storage requires stabilized cool temperatures and low humidity after a grain seed moisture content of 14% is achieved. Poor water drainage could possibly contribute to high humidity in the storage environment, an unfavorable condition for preserving seed vitality and high germination rates. Cement blocks, which conduct heat, are being used in constructing the walls but measures are being taken for good air circulation. The FMPI/NACID warehouse conforms to standard ESC designs for seed storage.

3) The ESB serves as a starting point for FMPI/NACID in Tigray. During the assessment, FMPI/NACID staff learned more about the region and the beneficiaries' needs and problems. They listened to the advice of the assessment team's water, agricultural and livestock specialists and realize the necessity of incorporating oxen distribution and water resources into their programming.

4) FMPI/NACID made assumptions that rainfall would be adequate to produce crops and that farmers will be able to repay seed loans. However, farmers stated that they have production only one out of every five years. Without the additional resources of water and oxen to plough, seed crops may not survive. The assessment team is assuming that rainfall will not be adequate. It is probable that outside seeds resources will be required until the additional inputs are available.

5) This project highlights the importance of a project design that incorporates all resources necessary for crop production. Seeds and tools are the primary input but without oxen to till the rocky inclines and a reliable water source, the seeds will not produce.

6) Beneficiaries include woman headed households, returnees and demobilized soldiers who have few or no seed reserves nor farming implements. The ESB assists them in reestablishing or improving their food production. The focus of the ESB is to increase production for consumption and not for excess marketing. The Revolving Fund is focused at preventing loss of assets by providing a continuous supply of seed stock for times of need.

The project enhances both technical and organizational coping strategies. For example, if rains come in June or July farmers plant barley, wheat and horsebean. If the rains don't come until August, they plant chickpeas or a shorter variety of barley. If the rains fail, they feed the crop residue to cattle before it loses its nutritional value. The ESB will ensure that a variety of cultivars is available throughout the season. The development of the ESB and RLF committees is encouraging community responsibility for selecting seed stocks and recipients and ensuring repayment.

7) The team consensus is that the project will require additional outside seed stocks until the water resources are improved and more oxen are available.

With the average size of household land at .5 hectare in the project catchment, intense cropping, simultaneous use of soil and water control methods, including the use of adaptable cover crops are required to reach and maintain subsistence levels.

Table 5

Famine Mitigation Criteria Rating
(Scale of 1 to 5, 5 highest)

FMPI/NACID Emergency Seed Bank

Indicator	Rating
Low-Cost	3.5
Large People Impact	4.25
Measurable Impact	4.5
Quick Implementation	4
Replicable	4
Capacity Building	5
Prevents Displacement	4.25
Prevents Loss of Assets	4
Reduces Recovery Time	4
Enhances Coping Strategies	4

F. CARE Vet Scouts Design, Management and Technical Issues

1) Borana Society is in a critical stage because of past displacement and civil strife. The policies and technical procedures employed by CARE's Vet Scout Program effectively address the Borana's problems. The primary goal of the program is to improve the health of the livestock of the Borana herds thereby enhancing food security and improving human welfare.

Four villages (Ollas) were visited and the program was discussed with one Vet Scout from each. In all cases the main concern of the Scouts was the lack of medical kits from CARE and the pace in which the SORDU has responded to Vet Scout and village requests for vaccinations. These appear to be the major barriers to full implementation of this project.

Village elders and members expressed high hopes that the Vet Scout program would greatly aid their welfare. CARE personnel also were very enthusiastic and capable of performing the technical aspects of this and other programs.

We were told that the SORDU laboratory has been supplied with equipment however this was not verified. SORDU is providing services on a limited basis, a veterinary clinic and supply outlet has been established in Dubuluk. Twenty percent of the livestock in the project area are receiving or have received treatment. Treated cattle improve the coping capacity of Borana people by providing disease free meat, milk and by-products. The project concept compliments traditional methods and values because cattle are the most important aspect of their society. Healthy animals lead to more wealth and status.

2) All components of the program are on schedule except receiving the medical kits and completing the vaccinations in the Peasant Associations. This will affect approximately 150 villages. CARE expected arrival of the medicines in late August 1993.

3) Based on interviews & discussion, SORDU has vaccines available at no cost but limited capacity to distribute them. Delay of vaccinations is attributed to lack of transportation for SORDU staff. CARE does not want to create a dependency by providing transportation to the MOA. We were unable to interview SORDU staff due to timing conflicts.

4) The Evaluation Team was doubtful that herders would provide monetary support to the Vet Scouts and pay for medicines and supplies. However, they are already supporting the Vet Scouts and look forward to medical supplies. The Peasant Associations are contributing for Vet Scout maintenance (salaries) and are prepared to pay for drugs when available. CARE's program is successful because their technical specialist, a Boranan, is highly qualified and trusted by the beneficiaries.

5) Lessons learned:

- a) All necessary drugs and vaccines, and other necessary equipment and tools must be procured before beginning training, including means of delivery.
- b) CARE implements a more integrated program than appeared in the proposal. Their program includes haymaking, water development, and some banking by elders/cattlemen.
- c) This is a community based, "grass roots" program promoted and supported by local NGOs & village people.

6) The project contributes to the goals of saving lives and protecting economic assets. The project will contribute to the overall well being of the herders and Peasant Associations.

7) Civil strife would affect the implementation of the project (displacement, conflict among pastoralists, lack of supplies, etc.). This occurred during the early 1980s ending the first Vet Scout Program. This project cannot be sustainable without a continuous reliable source of medicines and supplies, which CARE hopes to establish. With continued participation and support from the community, the project will have a much better opportunity to be sustainable.

The Borana need to get to the point where vaccinations are done on a preventive basis rather than responding to disease outbreaks and epidemics. This will decrease the necessity of overstocking, promote a more consistent economy and lessen the environmental impact.

Table 6

Famine Mitigation Criteria Rating (Scale of 1 to 5, 5 highest)	
CARE Vet Scouts	
Indicator	Rating
Low-Cost	3
Large People Impact ¹	4
Measurable Impact	3
Quick Implementation	2
Replicable ²	5
Capacity Building ³	4
Prevents Displacement	3
Prevents Loss of Assets	3
Reduces Recovery Time	3
Enhances Coping Strategies	5

¹An estimated 43,000 people will be impacted.

²Has application in pastoral regions throughout Ethiopia and Africa and in agro-pastoral regions where livestock are important for a coping diversity (Crop failure would mean more reliance on livestock).

³Site observations and interviews indicate the program will greatly aid capacity and coping ability of the Borana by having dependable, disease free animal products.

VI. THE FMA GRANT PROGRAM: CONCLUSIONS

A. What has Worked/Not Worked?

1) The grants successfully targeted famine-vulnerable groups.

Most of the groups targeted were former relief recipients. Project areas often contained displaced persons or returning refugees and soldiers. These groups are vulnerable to famine and would be among the first to require relief if one should occur. By strengthening the coping capacity of vulnerable people the projects prevent and mitigate the effects of future droughts and famines and reduce the relief requirements of vulnerable groups.

2) The funded projects generally targeted the objective of the Famine Mitigation Activity.

The grants alleviated the effects of drought and famine on vulnerable populations and environments, generally without crossing over the line into development. Famine mitigation activities should target basic subsistence, leaving further improvements to the development community.

Since African famines primarily result from civil conflict preventing food production or the movement of food into food deficit areas, conflict resolution is usually the necessary pre-condition for providing relief to famine sufferers. A sequence of interventions for responding to famines begins with relief activities which keep people alive, followed by recovery and mitigation activities that replace the tools and infrastructure needed for subsistence and local food self-sufficiency. Once basic support systems are in place, development activities to improve living conditions and to provide opportunities for advancing toward a higher quality of life can be implemented.

First order interventions for recovery and mitigation aim to support basic food and water security. Increased water availability and more efficient use can be promoted through various water harvesting and irrigation projects as well as through soil and water conservation measures to control erosion and increase soil water storage capacity. These measures can help make more water available for agriculture and domestic use even in drought prone areas. Measures to increase food production include adoption of intensive vegetable and fruit cultivation practices and establishment of local food storage and distribution networks. Replacement of productive assets such as draft animals and other farming equipment or provision of seed and other inputs may also be needed.

A second order of interventions directly related to the food security activities mentioned above concern essential services that enhance the abilities of farming families and their draft animals to grow more food. These include improved domestic and animal water supply, improved health services and access to medicines, and technical assistance for improved farming

practices. Such measures increase individual and family productivity through improved health or the removal of labor constraints, such as having to travel long distances to obtain water.

Third order interventions are more macro-scale and expensive and are usually considered development rather than mitigation activities. They are nonetheless related to food security and are important for improving the quality of life and productivity. Interventions of this type are in the areas of education, employment, markets and communications. Reliable transportation and information networks help prevent food deficit situations from developing into starvation and create access to markets.

According to these definitions, the LWF and Africare soil and water conservation projects are first-order interventions, as are the FMPI/NACID seed bank and Africare vegetable troughs. While the CARE Vet Scout program concerns animal health, it is also a first-order intervention because the beneficiaries are almost totally dependent on cattle for food. The Africare community water supply project is a second-order intervention.

3) The NGOs were appropriate implementors of famine mitigation projects.

The NGOs' biggest strength is that the projects are managed by Ethiopian nationals from the local areas in which the NGOs operated. These managers know the local conditions and are sensitive and responsive to the needs of the beneficiaries. The most effective projects were identified by local communities and will be taken over by them following implementation, enhancing local coping capacity and long-term project sustainability. In some areas the NGOs acted as a surrogate government with greater access to funds and greater operating efficiency than government agencies under current conditions.

4) The most effective projects included all environmental, social, technical and management aspects required for success.

The team observed two types of approaches: inclusive strategies in which the essential factors affecting project outcome were either included in the project design or were being implemented by the project management as separate projects, versus exclusive projects in which critical factors were either left unaddressed or to some other independent agency. The best projects were inclusive and included regular, formal monitoring both during the project and following completion. Projects which exclusively provided infrastructure may face difficulties requiring additional funding at later stages.

- a) By combining OFDA funding with that of other donors, LWF was able to include all necessary factors -- dam and canal construction, soil stabilization through tree planting, seeds and tools, technology transfer, extension services and monitoring -- to produce sustainable, community-operated irrigation projects.

- b) CARE, with the notable exceptions of failing to secure the necessary drugs for cattle treatment and placing too much reliance on the MOA to conduct vaccination programs, also included other components of successful cattle raising through separately-funded projects in hay-making, community rainwater catchment, and improvement of traditional water holes.
- c) Africare's vegetable troughs are inclusive in concept, providing materials, construction and extension services. The costs of the troughs and the introduction of new crops which are unfamiliar to Ethiopian farmers, however, are obstacles to widespread adoption which may ultimately require more resources to overcome than are available under the current grant.
- d) In its irrigation projects, Africare exclusively builds dams and relies heavily on the MOA to dig canals, stabilize soil upstream, provide seeds and tools and extension services, and to transfer the project to community operation. A silted-up, non-functional dam built by the MOA in the vicinity raises questions about its capacity to deliver these requirements.
- e) The FMPI/NACID project includes some requisite elements -- extension, infrastructure and seed -- but does not have the resources to provide other vital components such as irrigation water and animal draft power. FMPI/NACID is just getting a foothold in Tigray and will be in a better position to address these problems in the future, provided that they shelve current plans for imported seed-cleaning machines and concentrate instead on meeting communities' self-professed immediate needs for water, animal draft power, and grinding mills.

B. Timeliness of Results

Local-level famine mitigation projects devoted to increasing food security are an important complement to macro-economic programming.

Ethiopia currently has a window of opportunity of relative peace and social stability during which to break its cycle of famine and relief. Famine mitigation projects directly targeting household food security can contribute towards this end. Most Ethiopians are poor and rural, with limited access to health care. Few wage jobs are available. Attempts to build a strong national economy depend on maintaining local food security for the majority of the population. Failure to do so may well bring political instability and conflict resulting in the loss of macro-economic development investments.

Food and Humanitarian Assistance Office programs at the A.I.D. Mission include grants to NGOs for drought and famine mitigation

as well as food-aid. With on-going recovery from the war and recurrent drought, these famine mitigation interventions are critical to Ethiopian stability and more are needed. The OFDA-funded grants are a positive contribution in this regard.

C. Problem Solving

The manner in which the grants were solicited and funded placed undue burdens on the recipients.

The NGOs were unanimous in saying that funding delays and accounting requirements accompanying the grants were so burdensome that they were almost not worth the trouble for the amount of money involved. OFDA has taken steps to streamline the process for any future grants, dispensing with the requirement for submission of pre-proposals.

D. Validity of Assumptions

The types of famine mitigation interventions observed are appropriate and replicable, but project designs will necessarily vary by locale.

The interventions funded under the grant program were pilots to demonstrate the viability of strategies in water conservation, livestock health, seeds and tools and gardening techniques. On the basis of this interim evaluation, the interventions are viable approaches to famine mitigation and could be replicated provided that they are implemented with full recognition of local conditions, are based on local knowledge, originate at the local level, and include full community participation and ownership.

Within Ethiopia there is considerable regional variation in village-level organization, government capacity, and economic basis of food production. Similarly, the NGOs were found to have varying levels of funding, histories of experience in the area and attitudes towards food for work programs. Regional environmental differences also affect project design and implementation. These factors must be carefully considered during proposal reviews.

E. Unanticipated Results

A final evaluation is needed to look at project impacts and unanticipated results.

As the projects reach completion, the potential exists for unanticipated results. For example, the soil and water projects could easily create unequal access to newly irrigated land, creating haves and have-nots within the community. Women and the poor, the intended beneficiaries, need to be given access for the projects to be successful. Unanticipated results will be a focus of a planned ex-post facto impacts evaluation.

F. Sustainability

Ethiopian famine mitigation, particularly drought mitigation, depends on minimizing or reversing environmental destruction to preserve the natural resource base.

Since 90% of Ethiopians are engaged in agriculture, there is a direct relation between environmental degradation and food security. Much commendable work has been done through food for work slope stabilization and tree planting conservation projects in environmentally degraded areas. However, deforestation, over-grazing, and improper land-use and farming methods have led to deterioration of the natural resource base over large areas. Conflict and land tenure insecurity have contributed to lack of land stewardship. Environmental stress increases with population pressures; more remote locations showed greater bio-diversity and offered more coping options. Better environmental resource conditions existed overall in more sparsely populated areas. Water management through dam and well construction or rainwater catchment were often important project components. Water development is still a pervasive need in drought-prone areas. General land-use management is necessary to achieve proper crop selection or grazing practices given soil-type and slope.

G. Cost-effectiveness

Benefits are maximized when projects are funded in such a way as to include all components necessary for their success.

Since such projects are expensive, one cost-effective strategy is to co-fund projects with other donors. NGOs can coordinate this process by either combining funding from several donors to fund a single project or by obtaining funding for several distinct but complementary projects from individual donors.

Small NGOs who cannot manage all required components alone can team up with other NGOs to implement separate but complementary projects in an inclusive design. In Ethiopia, the Christian Relief and Development Association (CRDA) is a potential broker of coordinated, multi-NGO proposals. CRDA already maintains directories of national and international NGOs operating in the country and coordinates proposal funding on a competitive basis.

VII. **RECOMMENDATIONS**

A. Recommendations for LWF Soil and Water Conservation Project

1) Areas for improvement include increasing the variety of trees used to stabilize soil and shade the canals to include species that can provide food for animals and people in addition to providing building poles and firewood. Region specific information on multi-purpose species exists with the German

technical assistance organization, GTZ, who has sponsored a variety of thoroughly indexed tree books for tropical Africa. Also, as the level of production of marketable produce increases, some training in marketing practices might be helpful.

2) Of the five FMA funded projects reviewed, the LWF project was perhaps the best run and most integrated one. Though integrated projects are expensive and take several years to complete, they have a higher ratio of success than short term limited scope projects, and their start up and running costs are much less than those for short term projects. This makes the impact value of investments in integrated projects greater for all participating donors. For these reasons the partial funding of well run integrated projects is often preferable to the complete funding of discrete interventions which are less able to deal with unforeseen problems and are more dependent on a single donor for their survival. Because it is an outstanding example of a well managed, appropriately scaled, integrated project, the LWF irrigation project can serve as a replicable model for other places where irrigated agriculture can be developed.

3) After construction is completed and the system is in operation it can be evaluated based on maintenance of canals, amount and efficiency of irrigation, survival rate of trees, self-reliance of farmers, and amount of income generation.

B. Recommendations for Africare Earth Dam Projects

1) In comparing the Africare irrigation projects to those of LWF it seems that the Africare projects are lacking in integration and follow up. It would probably be better if Africare and the MOA, which is more active in Tigray than any of the other regions visited, remained partners throughout the construction of the dam, the canals, and the secondary irrigation layout. This would help to assure continuity and a timely completion of works. In addition surveillance of the system during its first year of use should be carried out by a technically competent organization with the ability to intervene when necessary to correct any problems with the physical structures or their use. Though the MOA has the technical competence to do this, its ability to finance corrective works if they are necessary is uncertain. It is also a good idea to adhere to what one Ethiopian engineer called the "hard and fast rule that the watershed be thoroughly treated before the dam is built." Unless this law is respected, retention dams built in an area where run off can be over 80%, are certainly doomed to turn quickly into silted up check dams like the dam in Wukro that was in the original Africare proposal. Solid engineering should not be compromised to what is perceived as political necessity.

2) There is great need in Ethiopia for assistance in supplying even the most basic infrastructure. Africare receives many more legitimate requests for help than it can satisfy. When the FMA project funds were reallocated they were spread in four

directions. This may have deprived the dam and irrigation projects of the funds necessary to assure their successful completion. It might be less problematic and more effective to concentrate on fewer projects more completely. This should be an important consideration during the funding approval process to ensure that soil and water conservation projects are well planned and executed.

3) It should be apparent after their first year of operation if the dam and irrigation projects are working as they were designed to work. Some of the indicators will be the amount of siltation, the amount of water held by the dam in relation to the amount of rainfall, the number of hectares irrigated, and the distribution of irrigated parcels.

C. Recommendations for Africare Water Supply Projects

1) Ethiopia is relatively behind most other African countries in potable water supply. Because of civil conflict new water points have not been built and many existing water points have been sabotaged. There is a pressing need to mobilize existing drilling equipment and to supply the necessary materials and funding for a multi-year country wide water supply program. This usually happens through bi-lateral agreements. In the case of Ethiopia a certain amount of drilling capacity exists among the various NGOs which could perhaps be mobilized and coordinated by CRDA and funded by one or more development agencies to establish potable water supply points in places where getting water can take all day.

2) The two Africare water supply projects are more like development projects than mitigation projects because they are extensions of existing systems. Though these are worthy projects in themselves they do not properly fall within the criteria of a famine mitigation project. Clearly stated FMA guidelines should direct implementing agencies to favor small-scale, local capacity building, food security related projects in which water supply improvements may be a key component. There are several techniques for collecting water that do not require the expense of drilling deep wells and fitting them with pumps. Small-scale surface water collection and storage systems such as the ones built by CARE in the Borana region are one example of an appropriate intervention within the parameters of a famine mitigation activity.

3) After their first year of operation both water supply projects can be evaluated according to how well they are satisfying the needs of users, and if the money collected for water delivered is enough to pay for the maintenance and amortization of the systems.

D. Recommendations for Africare Vegetable Troughs Project

1) Africare needs to explore alternative low-cost vegetable trough construction techniques. The current cost of \$441 US per trough will prevent them from being adopted in the absence of continued outside funding.³

2) Acceleration of social marketing, and outreach and extension training: There are several constraints to adopting VT, an otherwise sound famine mitigation strategy, across the rural to urban continuum. Overcoming the cultural constraints in increasing the nutrition from vegetables among low income families will require a well coordinated interagency effort, between the MOA and Ministry of Health (MOH) using community meetings, media, cooking and crop production demonstrations, hands-on skill training, for interested low-income groups and market gardeners. This should be done in tandem with developing a revolving loan fund through community organizing along the lines piloted in the FMPI/NACID/Emergency Seed Bank project in Tigray to reduce the costs of developing VTs.

3) Comparison of the performance of VTs in rural and urban areas: The spatial aspects of VTs in relation to food security is at issue. Monitoring the performance of VTs in low rain fall, rural village communities with and without stable water supplies will assist in measuring their impact as a famine mitigation intervention. How well low income groups and families in rural towns and cities improve nutrition from using VTs will also have implications for meeting the needs of villagers who migrate due to drought or conflict.

4) Promotion of a variety of horticultural crops: Improving the diet from vegetable and fruit sources will require inter-agency collaboration between the MOA and MOH. The basic framework for this partnering includes upstream social marketing activities and downstream food preparation and production demonstrations, in addition to reducing VT construction costs.

5) Acceleration of integrating VTs and water with other basic community needs in both rural and urban communities: Africare needs to intensify and expand the basic community needs center model it has established in Dollocha to heighten food security and stabilize populations. Africare's efforts included a community vegetable trough that served as a demonstration site, an operating engine driven water well with reservoirs and water points for household water supplies, water trough for animals, fluoride water monitoring and treatment efforts, and a grinding mill with a shed.

³ Lynn Uttal, Team Water Resources Specialist, drew up plans (Appendix 3) for an in-ground trough constructed of local, and low or no cost materials.

6) Inclusion of Seed and Garden packs: An input supply pack with seeds and necessary tools, should support extension training and outreach efforts. These could include "how to" fact sheets written in the local language covering such topics as, VT construction, transplanting, harvesting and vegetable storage, seed selection and storage, and integrated pest management techniques.

E. Recommendations for the FMPI/NACID Emergency Seed Bank Project

1) The following recommendations support an integrated approach to sustain FMPI/NACID's Emergency Seed Banks in Tigray at the Gantafeshum and Bezet woreda sites.

Extend food security project activities to water resource development including:

- a) Low-cost and low-labor rain catchment schemes in the household compounds of farmers to intensify the production of traditional drought tolerant short season seed cultivars. Examples of such catchments were observed in Borana.
- b) Construction of seasonal earth dams with food for work payments to irrigate traditional drought tolerant short season seed cultivars.
- c) Explore the possibilities of drilled wells for irrigation of seed cultivars grown inside and outside the compound.
- d) Diversion weir spring and river irrigation if feasible.

To accelerate the impact of the seed bank intervention, especially in respect to food security, FMPI/NACID should reconsider requesting the donation of the proposed seed cleaning machine. Sophisticated, imported machinery is likely to create maintenance and spare parts difficulties. More basic and critical inputs to promote indigenous seed cultivars, such as irrigation, oxen and on-site seed expertise are needed. Although the quality of the seed purchased from outside and within Tigray could be improved with the seed cleaning machine package, a comprehensive input package emphasizing seed production rather than seed processing better supports developing adequate supplies of indigenous cultivars. At this stage it is more critical to produce the seed supply than to establish a state-of-the-art, imported seed cleaning processor for the seeds produced.

For example, over one third of the project farmers do not have oxen for timely plowing and seed bed preparation. Farmers in Gantafeshum report adequate harvests in only one of five years. At 240 US Dollars per oxen, 200 oxen could be purchased for 48,000 US Dollars. With 72,000 US Dollars remaining, enough would be available for a water feasibility study and follow-up

intervention. Water development could be coordinated with an NGO such as Africare working in the region. In Bezet there is an extreme shortage of potable water, causing women to devote up to five hours daily obtaining water. In addition to the need for agricultural water to support the seed bank, removing this labor constraint would free women for agriculturally productive activities.

FMPI/NACID should establish a working relationship with the appropriate departments of the government of Tigray which includes a) leveraging request for in-kind assistance and b) support from NGO's with water resource development capabilities in the region.

FMPI/NACID has retained the services of a seed specialist consultant, a former head of the ESC. He will visit the ESBs three times a year for a week each time. These include 1) before purchased seed is distributed, 2) during the first harvest repayment period, and 3) before local seed cultivars are distributed from the ESB warehouses. This is adequate technical support only if MOA Extension Agents stationed at the ESBs are well trained to follow-up on the consultant's recommendations, and to provide daily technical support and training to seed committee representatives. Extension Agents should receive extensive training in seed processing and storage, and information on locally suitable cultivars in the project catchment. FMPI/NACID should also secure back-up specialists from ESC for seed supply contingency and technical support.

2) Although the ESB does not fulfill the needs of the area for producing adequate food, FMPI/NACID has chosen an area in dire need. The ESB is only the starting point for their planned activities for the area. Water resources development and oxen distribution activities to compliment seed and tools distribution should be encouraged. Continued monitoring and evaluations should concentrate on the team's assumptions that seeds and tools alone will not suffice and that the seed bank will serve as a catalyst for more activities and an integrated community approach.

F. Recommendations for CARE Vet Scout Project

1) CARE should analyze how the specific intervention integrates with other needs; marketing, cultural traditions and community development.

2) Technical exchanges within country (possibly outside) would expose NGOs and agents to other techniques that have applicability to local concerns (water development, grazing management etc.). This could be done by cooperative agreements or other means.

3) Donors and the GOE should pay more attention to the needs of this region. The instability of Kenya and Somalia make it a

politically volatile and sensitive area. There is considerable movement of displaced people throughout the region which impacts the local stability and food security.

4) Twenty to twenty-five additional scouts should be trained to meet the veterinary demand for the entire Borana region. This project only addresses 16 Peasant Associations.

5) Additional technical assistance is needed to assure an integrated approach in grazing management, soil and water conservation, marketing of livestock, selling of livestock to enhance range condition, and other programs.

6) The final evaluation undertaken upon project completion should include the following:

- Assessment of the record keeping by Vet Scouts and SORDU; number of animals treated for disease, amount of drugs, supplies and vaccines used etc.
- Site visits of at least 50% of the Peasant Associations to evaluate impacts of program (herd size and health, and participants perceptions).
- Site visit and meeting with SORDU representatives to collect data on laboratory functions and results, and vaccine supplies and distribution.
- Assessment of CARE's progress in achieving integrated activity development.
- Community meeting with all Vet Scouts, CARE, SORDU and village representatives to fully discuss the program.
- Evaluation of the success in establishing Peasant Association sustaining Vet Scout program. Is a revolving fund for medicines operating or is outside assistance still needed?

G. Recommended Indicators for Final Evaluation

All of the projects funded by the Famine Mitigation Grant Program share the same goal: to reduce target beneficiaries' vulnerability to famine. The principal objectives for four of the projects are to increase the local production of food, and improve the nutritional status of the population through the introduction of new foods. Therefore, the LWR Soil and Water Conservation Program; Africare's Small-Scale Irrigation (Earth Dams and Water Systems), and Vegetable Troughs Development Programs; and FMPI/NACID's Emergency Seed Bank Project should be evaluated on their actual impact on the target beneficiaries based on the following indicators:

- 1) Increased number of harvests per year (three-four cited).
- 2) Increased production yields.
- 3) Increased variety of crops produced (list varieties).
- 4) Increased supply of food to the market. Grantees should track food varieties, amounts and market prices.

CARE's Vet Scout Program differs from the other Grant Projects in that its objective is to increase cattle production. Cattle provide the Borana with their staples of meat, milk, and blood, and therefore constitute their major food source. The following indicators should be used for the final evaluation of CARE's Program:

- 1) Decreased incidence of disease in herds.
- 2) Increased number of cattle vaccinated and treated against diseases.
- 3) Increased market prices of cattle. Ideally, healthier cattle should fetch higher prices but a gradual increase in livestock herd size should eventually cause the prices to stabilize. Continued market monitoring by Vet Scouts should alert them to possible problems, i.e. outbreaks of disease, overstocking, and negative effects of drought on cattle health.

VIII. LESSONS LEARNED

- 1) **More attention should be given to natural resource conservation as a famine mitigation strategy.**

Project designs should take full account of environmental factors affecting their outcomes. Intervention sustainability and effectiveness depend on proper cycling of soil, water, vegetation and animals. Specific environmental management strategies will vary by region, but may consist of such things as livestock marketing to prevent overstocking, water catchment, and soil and water conservation. Donors should review proposals from the standpoint of environmental sustainability. NGOs should design projects in which all relevant environmental factors are considered or team up with other NGOs to produce sustainable project designs and implementation.

- 2) **OFDA should carefully monitor and approve all requested changes to project designs.**

Care should be taken that changes in project design in response to unforeseen conditions result in projects that still directly target household food security and do not tend towards development.

3) OFDA/PMP needs to better define the criteria for determining when and where to undertake famine mitigation interventions and streamline the funding process.

The five grants evaluated here were funded by identifying target countries and requesting pre-proposals from NGOs for famine mitigation projects in those countries. The pre-proposals were reviewed and full proposals requested for the most suitable ones, followed by requests for additional information. This process was burdensome for both reviewers and offerors. Furthermore, while the pilot projects represent appropriate famine mitigation designs, there has been considerable Mission resistance to having projects implemented by OFDA outside of the Missions' own programming strategies both in Ethiopia and Agency-wide. In 1992, after the Ethiopia project funds had been obligated, OFDA/PMP was given guidance not to pursue further bilateral projects. This guidance suggests a revised administrative approach to famine mitigation which avoids ad hoc OFDA bilaterally funded projects but in which the pilot project designs could nevertheless be instrumental:

- 1) In support of Mission disaster PMP initiatives OFDA/PMP is currently providing technical assistance to such efforts in Niger and Haiti.
- 2) When linked to OFDA relief operations, PMP is uniquely placed to bridge the gap between relief and development, designing or reviewing proposals for interventions which promote self-sufficiency and reduce dependency among disaster relief recipients.
- 3) Wholesaling rather than retailing famine mitigation projects by funding umbrella organizations such as the World Food Program operating in multiple countries to improve their capacity to formulate and implement famine mitigation designs.
- 4) Supporting worldwide, regional or bilateral preparedness activities which improve institutional capacity to warn or respond to disasters. For example, OFDA/PMP is currently funding a project with the UN Department of Humanitarian Assistance to link together the information and communication systems of major international disaster response organizations.

Appendix 1

**Ethiopian Interim Evaluation
Interviews and Contacts List**

June 25 - 30, 1993

John Mason, Basic Health Management, Evaluation Specialist
Marge Bonner, AID/AFR/TR (new Ethiopia Mission Director)
William Douglas, AID/AFR/EA (new Ethiopia Mission Program Officer)

July 10 - 15 Addis Ababa

Mike Harvey, Food for Peace Officer, USAID
Anna Olinsky, Food for Peace Intern, USAID
Jeanne Hoffman, Ethiopia Desk Officer, AID/AFR/EA

Jim Williams, Country Representative, Africare
Tamarat Deleleng, Deputy Chairman of NACID Board of Directors
Pastor Bekele Lakew, Chairman of NACID Board of Directors
Tsegaye Gelgeno, Financial Manager, NACID
Robin Needham, Country Director, CARE
Claudia Futterknetch, Project Coordinator, CARE
Yon Schutte, Country Director, LWF
Gebreyes Haille, Project Manager, LWF
Brother Gus O'Keefe, Coordinator, CRDA
Hank Fitzhugh, Deputy Director, ILCA
Kay Sharpe and John McHarris, FEWS

**July 16-19 Harar and Hararghe, Dire Dawa
Lutheran World Relief Soil and Water Conservation**

Gebreyes Haille, Project Manager
Yosef Mekonnen, Irrigation Specialist
Doctor Mamo, Health Programs Director
Araya Abebe, Project Manager
Belachew Tikse, Agronomist
Tesfa Alem, Engineer
Teshome Mahmud, Financial Director
Village Chiefs and Participants

**July 20-21 Adigrat and Beset, Tigray
Feed My People/NACID Emergency Seed Bank Project**

Kassaye Haille, Manager, NACID
Mohammed Ahmed, Project Coordinator (Economist)
Amare Worku, Field Coordinator (Sociologist)
Sahle Aregay, MOA Extension Agent
Dejen Belaye, MOA Extension Agent
Meehingigey, Chair of Women's Association of the TABIA
Adigrat TABIA (Peasant Association) Representatives Wezero
Beset TABIA Representatives; Farmers and Seed Recipients

July 22-23 Abiy Adi, Wukro, Tigray
Africare Soil and Water Program

Jim Williams, Country Representative
 Ephrem Guady, Water Supply Engineer
 Mamo Mulat, Soil & Water Expert, Ministry of Natural Resources
 & Environmental Protection (MONREP)
 Martin Taylor, Forage Specialist, FAO Consultant
 Mike Moran, FAO Livestock Specialist
 Site Supervisors and Participants

July 24 Addis Ababa

July 25-26 Southern and Northern Shewa
Africare Vegetable Troughs Program

Jim Williams, Country Representative
 Mamo Mulat, Soil & Water Expert, MONREP
 Wezero Genet Yewybety, MOA Extension Agent, Alem Tena
 Lema Abeba, MOA Extension Agent, Nazareth
 Kassa Woldeberan, MOA Extension Agent, Northern Shewa
 Woleta Haille, Alem Tena Vegetable Trough Farmer
 Vegetable Trough Users and interested Farmers
 Aduka Kitila, Director of MOA Sheep Research Center

July 27 Addis Ababa

Judy Bryson, Food for Work Specialist. Africare (Washington, DC)
 Catherina Puffenberger, Food for Work Specialist, Contractor
 Health Program Coordinator, MSF Belgium
 Mike Harvey, USAID

July 28 - August 1 Borana
CARE Vet-Scout Program

Jatani Dembella, Assistant Program Coordinator
 Timmotio Gubo, Deputy Woreda Administrator
 Gilma Halake, Relief Center Leader, EECMY
 Anagel Gelo, MOA Extension Agent
 Eieyelo Iave, CARE Field Supervisor
 Ato Dejene, CARE Extension Agent for Areri Peasant Association
 Ato Derriva, CARE Extension Agent for Areri Peasant Association
 Jatani Golo, Village Elder of Areri
 Guyo Guracha, Vet-Scout for Areri
 Tadhi Galgalo, CARE Extension Agent for Igo and Kotile Peasant
 Associations
 Gorboyle Boru, Vet-Scout for Igo
 Tadhi Jillo, Vet-Scout for Kotile
 Ato Fikru, Water Development Technician
 Jirma Wagu, Vet-Scout for Medecho Peasant Association
 Villagers, Cattle Owners, and Traders

August 2-4 Addis Ababa

Hank Fitzhugh, ILCA Director
 Eddie Mukassa, ILCA Veterinarian
 Mamo Mulat, Soil & Water Expert, MONREP
 Brother Gus O'Keefe, Coordinator, CRDA
 Steve Schultz, U.S. Embassy Self Help Program Coordinator

USAID and NGO Debriefing:

William Pearson, USAID Mission Director
 Walter North, USAID Deputy Director
 Mike Harvey, USAID
 Anna Olinsky, USAID
 Kassaye Haille, NACID
 Amare Worku, Project Coordinator, NACID
 Paul Barker, Project Coordinator, CARE
 Yon Schutte, Country Director, LWF
 Gebreyes Haille, Project Manager, LWF
 Mamo Mulat, Soil & Water Expert, MONREP

August 6, 1993 Washington, D.C.

Evaluation Team Debriefing to OFDA

Richard Affleck, USDA/OICD
 Raymond Meyer, AID/FHA/OFDA/PMP
 Marty Hanrathy, AID/Strategic Planning (new USAID Ethiopia
 Agriculture Program Officer)
 Brad Michaels, Basic Health Management Evaluation Specialist
 (Proposal Review Member)
 Barry Heyman, AID/FHA/OFDA/PMP
 Tom Marchione, AID/FHA (Proposal Review Member)
 Suzanne Burgess, Basic Health Management
 Elmer Fales, AID/FHA/OFDA
 Paul Novick, AID/AFR/AA/DRCO
 Jeanne Hoffman, AID/AFR/EA

Appendix 2

**Ethiopian Interim Evaluation
Documents Consulted**

The following documents were collected and reviewed by members of the Evaluation Team.

A. Lutheran World Federation/Relief (LWF/LWR) Soil and Water Conservation Program Documents

- 1) Project Proposal: Submitted by Lutheran World Relief (LWR) March 13, 1992.
- 2) Response to issues raised by proposal technical review, Jeff Whisenant, LWR, July 6, 1992.
- 3) First Quarter Project Progress Report, EECMY/LWF, 01/01/93 - 03/31/93.
- 4) Second Quarter Project Progress Report, EECMY/LWF, 04/01/93 - 06/30/93.
- 5) Soil and Water Conservation Project, Eastern Ethiopia, 1993 - 1995: Planning and Monitoring System Document. EECMY/LWF, September 1992.
- 6) Site Plan Layouts for: Harar Dawe River Diversion, Dire Dawa Jilbo River Diversion, Dire Dawa Bishan Behe Spring Development and Dire Dawa German 2 River Diversion.

B. Africare Small Scale Irrigation Program Documents

- 1) Revised Project Proposal and Financial Plan: Submitted by Africare June 26, 1992.
- 2) Mid-Term Project Report, October 1992 - March 1993.

C. Africare Vegetable Troughs Development Program Documents

- 1) Revised Project Proposal and Financial Plan: Submitted by Africare June 26, 1993.
- 2) Mid-Term Project Report, October 1992 - March 1993.
- 3) Report on Vegetable Trough Activities, prepared by the Ministry of Agriculture.
- 4) Africare data sheets: Vegetable Trough Development Check List and Monitoring Table.

D. Feed My People, International (FMPI)/Nazareth Children's Center and Integrated Community Development (NACID) Emergency Seed Bank Project Documents

- 1) Project Proposal: Ethiopia Document, February 1992 and Proposal submitted to USAID, March 16, 1992.
- 2) Response to issues raised by proposal technical review, John Zemaitis, FMPI, June 25, 1992
- 3) NACID Accounts and Audit Report, December 31, 1992.
- 4) NACID Progress Report, January - March, 1993.
- 5) NACID Brief Progress Report, March 25, 1993.
- 6) NACID Fund Income and Expenditure Statement, June 30, 1993.
- 7) NACID Progress Report, March 15 - July 15, 1993.
- 8) NACID Progress Report, April - June, 1992
- 9) Report of April 12-24, 1993 Visit by Lon R. Taylor, FMPI, May 18, 1993.
- 10) Project Area Profile (NACID in-house document).
- 11) NACID in-house data: Population Profile, 1992-93; Land Use, Land Cover and Average Productivity of Major Crops, 1992-93; Crop Market Survey, Bezet, 1992-93.

E. CARE Vet-Scout Program Documents

- 1) Project Proposal: Submitted by CARE on March 15, 1992.
- 2) Response to issues raised by proposal technical review, Claudia Futterknecht, CARE Borana, July 3, 1992.
- 3) Vet Scout Program Report, October 1992 - March 1993.
- 4) Vet Scout Program Report, January - June, 1993.
- 5) Tour Plan of Evaluation Team, July 28 - August 1, 1993.
- 6) Training Schedule ("Tentative Time Table") for Vet Scout Training.
- 7) Ecology and Land Use Map of the Southern Rangelands Development Unit (SORDU), Ethiopia.
- 8) Mid-Term Evaluation: CARE/Borana Rangelands Development Project, Ethiopia. October 1990.

F. Other Documents

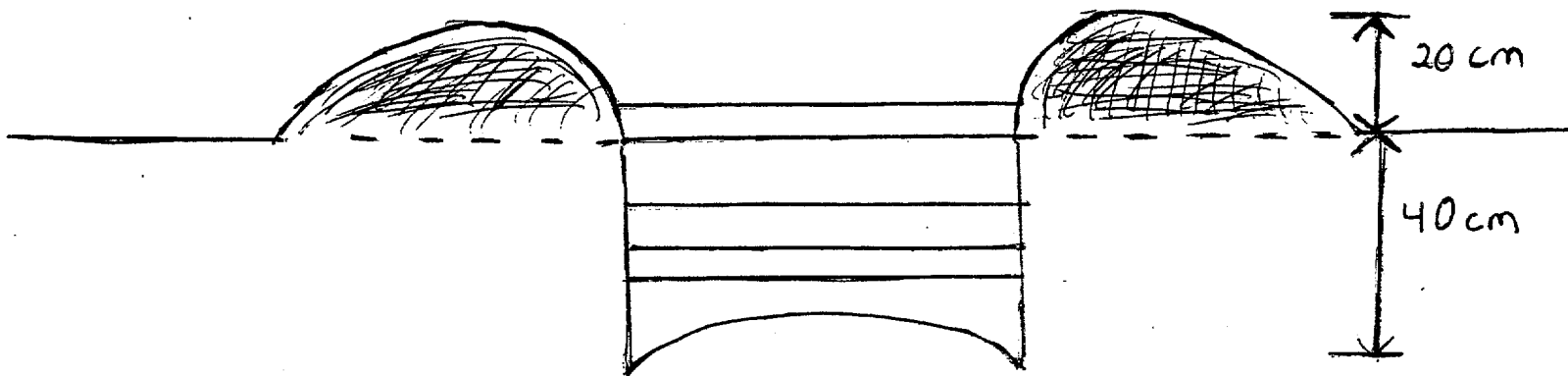
- 1) Christian Relief and Development Association (CRDA): Directory of Members, January 1993.
- 2) Kerven, Carol, 1992. Customary Commerce: A Historical Reassessment of Pastoral Livestock Marketing in Africa. London, United Kingdom: Overseas Development Institute.
- 3) Lipton, Michael and Simon Maxwell, 1992. The New Poverty Agenda: An Overview. Sussex, United Kingdom: IDS.
- 4) Various Maps of Borana and Ethiopia i.e. Land Use, Rainfall, etc., produced by International Livestock Center for Africa (ILCA).

Appendix 3

ALTERNATIVE VEGETABLE TROUGH DESIGN

Designing and installing an alternative, in-ground vegetable trough can be done in the following way:

- 1) Dig a trench 40 cm deep by width and depth as for current design. Place excavated soil around the edges to build up sides.



The bottom of the trench should have a convex shape to promote drainage towards the edges.

- 2) Plaster bottom and sides with wet cow manure and cover with large green leaves (banana or other).
- 3) Immediately add:
 - a) a small layer of gravel for drainage
 - Followed by: b) a layer of sand for a filter
 - Followed by: c) manure with ashes, crushed bone, hair, etc.
 - Followed by: d) sand
 - And: e) a top layer of sand, fine soil and sifted dry donkey or horse manure (or whatever topping mix you currently use).

Then soak the trough.

- 4) These troughs should last two to three years before they require rejuvenation. Drainage holes can be punched along the edges.

Use the cement you save to build an in ground cistern. Thirty sacks of cement are needed for a 30,000 liter storage tank.

Appendix 4

Famine Mitigation Grant Program Interim Evaluation Scope of Work

I. INTRODUCTION

The Food and Humanitarian Assistance, Office of U.S. Foreign Disaster Assistance's Prevention, Mitigation and Preparedness Division (AID/FHA/OFDA/PMP) requested pre-proposals in November 1991 for projects for alleviating the effects of drought and famine on vulnerable people in the target countries of Ethiopia, Angola, Laos, and Sudan. Selected Offerors were invited to submit full proposals, five of which were selected for funding by OFDA/PMP. Grants were awarded in Fall, 1992 for the following activities, all of which are located in Ethiopia:

1. Africare's Vegetable Trough Production in Shewa.
2. Africare's Small Scale Irrigation Development in Tigray.
3. CARE's Vet-Scout Program in Borana.
4. Feed My People's Seed Bank Program in Tigray.
5. Lutheran World Relief's Soil and Water Conservation in Dire Dawa.

The five implemented projects have finished or are nearing completion of their construction phases. An interim evaluation will be undertaken to measure the short-term performance of the individual projects and to compile and verify data already collected by the implementing organizations and cooperators (Ministries and local NGOS). The impacts of the projects will be more apparent after a full agricultural year of implementation. Therefore, a final evaluation is planned for FY94. That assessment will focus on measuring how well the interventions alleviated famine.

A. Goal and Purpose of the Program

The goal of the Famine Mitigation Grant Program is to alleviate the effects of drought and famine on vulnerable populations and environments.

The activities chosen for implementation increase food availability; improve agricultural and livestock production; and conserve natural resources.

B. Purpose of the Evaluation

The evaluation will monitor the progress of on-going programs; assess the impact of unforeseen conditions on implementation of the projects, and will make recommendations for improving implementation and data collection. The assessment will also assess the short term impacts of the programs, focusing on the benefits to the targeted populations and cooperating institutions.

II. EVALUATION QUESTIONS

A. Overall Program Effectiveness

The Assessment Team will collect information on the following indicators to measure how well the Famine Mitigation Grants Program assisted in alleviating famine.

1. How well did the implementing organization target its project at the most vulnerable populations? How did they define vulnerability? The beneficiaries for a specific intervention, such as an irrigation scheme, may not be the most vulnerable overall, but rather the group to profit most from the intervention. A less vulnerable group may be more at risk to lack of rainfall (less coping strategies, less adaptability).

- How did the organization determine vulnerability: field visits, government agencies, Relief & Rehabilitation Commission, solicitations from regions?
- What conditions existed before the project? Baseline data: rainfall, production, health status.
- Is the region affected by the project clearly defined? For example, a water systems activity can affect the villages downstream as well. Information should be collected and provided that is specific to that region; both baseline and on other projects being implemented in the region.
- What are the population's coping strategies/milestones: selling assets, out-migration of workforce, forced migration (conscription into military, seeking food/water). These should be ranked according to severity of stress.
- What was the community involvement in project needs, identification, and implementation?
- Was the project an "off the shelf project?" Have they tried it elsewhere? Results? Proven success? Replicability?

2. How well did the project reduce the vulnerability of the target group? This will be an interim evaluation as most of the projects are just finishing their products. Longer term results and impacts will not be measurable yet.

- Measured against a baseline under similar conditions (stressful events) are the beneficiaries better prepared to cope with food shortages?
- Have the projects increased the nutritional status, family income, production, water security, assets (tools, livestock), etc, as stated in proposals?
- Have the projects reduced the reliance on coping strategies; lessened out-migration, increased tillage, and restocked herds? Have new food and crops been adopted?
- What was the actual level of community participation in activities, adaption and use of product? Did participation levels change when the NGOs ended their direct involvement?

3. Lessons learned. How can PMP incorporate aspects of the Program and pilot projects into their continued programming? Which parts should be continued/replicated?

- What kind of designs are most appropriate and successful?
- What new insights were gained from individual projects?
- How were the relationships between PMP, NGOs, and Mission perceived? Solicit NGO and Mission feedback on the process and program.
- This was a pilot program; should it be replicated? Should the individual projects be replicated?

4. Comparisons of Approaches. Was the chosen technical approach the most effective for the region and population? How does it compare to other approaches implemented in the region (e.g. pump vs gravity fed irrigation systems)? How does it rate in effectiveness, cost benefit and appropriateness, replicability, scale of intervention, sustainability, etc?

B. Individual Projects

The evaluation team will review the individual projects, their proposals and reports to monitor each of their performances in achieving the stated goals, and producing outputs. The Team will also assess each individual project's impact on reducing vulnerability to famine.

1. Africare: Vegetable Troughs in Shewa \$55,825

Construction of 40 backyard vegetable gardening troughs that conserve water and allow multiple plantings per year.

GOAL: To strengthen the ability of the community to survive periods of drought, thereby decreasing the need for relief assistance and mitigating famine.

A. Field Implementation

The Grant specifies that the Project will introduce a backyard gardening technique that:

- uses up to 80% less water;
- can out-yield conventional methods of cultivation by up to 300%;
- requires minimal labor;
- permits 3-4 planting annually; thereby, ensuring year-round food for nutritional needs even in times of drought, and providing a source of cash income.

Because of the high productivity of the troughs, it is anticipated that they will be adapted commercially to provide cash. Other direct benefits to people from food produced will be improved nutritional status and cash earnings to meet other basic needs from sale of surpluses, and increased self-reliance of the participants.

Use of vegetable troughs could potentially reduce the number of people requiring relief assistance. Improved water availability from bore wells will:

- reduce incidence of water borne diseases;
- free women and children from time needed to collect domestic use water.

Direct beneficiaries will be the 40 families/farmers cultivating in the troughs. Indirect beneficiaries are other village inhabitants (36,000) who will benefit from wells constructed and greater availability of food produced.

Africare, the community and the Ethiopian Government will contribute 55% of total project inputs: drilling equipment and

supplies, technical staff, and training in operating and maintenance; transportation of materials to site, labor to construct troughs and wells, and cultivation of vegetables. The MOA will provide technical assistance, agronomists and extension agents to oversee construction of the troughs and train farmers to use and cultivate in the troughs.

The evaluation team will consider the following questions:

1. Have 40 vegetable troughs, each with a surface area of 300 square meters, and two, six-inch diameter bore wells (each to a depth of up to 45 meters) with casing and hand pumps been constructed? Have the two troughs for vegetable and seedling production been constructed?
2. Have the troughs been planted? Have there been any harvests? If so what is the production level (was estimated at 5,578 kgs of vegetables per family annually)? Do 3-4 harvests annually still seem viable (based on current levels of utilization)?
3. Has the Grantee provided village level technical assistance, organization and training that strengthen family irrigated agricultural and backyard gardening practices, including operation and maintenance of water delivery systems?
4. Have the MOA/SWCD and Ethiopia Water Commission provided appropriate interfaces and support for maintaining the systems operation?
5. Have the farmers been organized to reserve and store seeds and cuttings from harvests for later plantings? Have villagers been selected and trained on operation and maintenance of pumps and wells?
6. Has a community fund for routine operation, maintenance and spare parts for the wells and pumps been established?
7. Has project implementation included Ethiopians at all levels, including family members, community leaders, civil engineers, hydrologists, well drillers and agricultural extension staff?
8. Have water requirements for production decreased by 80%? Has the effort required for cultivation and weeding been reduced (less labor required in relation to yield)?
10. Has the project reduced the population's dependency on food aid (yet)? Has there been a lowering of visible morbidity/mortality due to malnutrition and water borne diseases?

11. Have the 40 families received additional cash income from surpluses sold and are other villagers benefitting from food locally marketed?

B. Means of Verification

- Review of prior relief records during drought and comparison to recent records under similar conditions.
- Review of project records; water system operation records, pump use records, garden records, and project reports.
- Review of health clinic records.
- Interviews with 40 families, farmers' cooperative, and community residents.
- Site observations/inspections.

C. Assumptions

- Region remains stable and secure.
- No major epidemics nor outbreaks of nutritional related diseases.
- Spare parts and supplies for wells are routinely available.

D. Other

Proposal does not state how many seeds and tools to be provided nor quantity of materials needed for construction of troughs (OFDA requested and should have this information).

Women are traditionally responsible for family gardens. How well were they represented by participants? Are groups adapting the technology? Is it replacing traditional garden cultivation?

What other uses are there for the trough that might keep people from gardening in them (i.e. water collection)?

2. Africare: Small Scale Irrigation in Tigray**\$200,056**

Development of irrigation system for agricultural production and boreholes for gardening, livestock and human consumption. Organizational training and extension for farm families in irrigated agriculture and gardening practices.

GOAL: To restore the ability of the community to survive periods of drought, thereby decreasing the need for relief assistance and mitigating famine.

A. Field Implementation

The Grant states that the project will provide an infrastructure that can support the year-round delivery of water and production of food to sustain life, thereby ensuring basic nutrition and lowering the incidence of water borne diseases.

The project will place 30 hectares of land under year-round irrigated agriculture, which will allow for 180 families to cultivate two to four crops annually on 1/16 hectare each (page 13 states that the average family holding ranges from 1 to 1.5 hectares). The estimated total annual yield is 244.8 Mts.

The three village wells will:

- allow 1,500 families to cultivate family gardens;
- increase food production level and improve local diet.

The estimated production level for family gardens is 100 kgs per family annually. The increase in food production will permit surplus food to be sold or bartered for other household and personal requirements.

Improved water availability will:

- help reduce the incidence of water born diseases;
- free women and children from time needed to collect domestic use water;
- provide closer access to water by livestock.

Water use training, and seeds and tools provided by the project to villagers will enable them to adopt and implement improved, irrigated farming practices.

The direct beneficiaries of the project will be:

- the 540 family members (average three persons per family) of the 180 farm families to cultivate the 30 hectare irrigated agricultural perimeter;
- the estimated 4,500 family members whose backyard vegetable gardening and small animals will benefit from new well water availability;
- the entire 13,258 population of Wukro that will use water from the three new wells for meeting domestic needs.

The evaluation team will consider the following questions:

1. Have three, six-inch diameter bore wells (each to a depth of up to 45 meters) been drilled and supplied with casing and hand pumps? Are they functioning and how much water do they supply?
2. Has the water system been constructed providing an irrigated agricultural perimeter of 30 hectares, supplied by two seven horse power diesel pumps raising water from an existing dam on a Genfel River 15 meters up to a concrete storage tank, and gravity flowing it to the fields through a series of canals?
3. Are the 30 hectares being supplied with water year round and under cultivation? Are the villagers using water for gardens, livestock and domestic use? Are they cultivating gardens, and operating and maintaining the water systems.
4. Have harvests been increased to 3-4 per year? Have the numbers and quantities of crops produced annually increased? Are increased cash and food available at the family and community level?
5. Have maintenance supplies and spare parts for the water systems been provided? Has training on the installation and maintenance of simple irrigation structures, the utilization of irrigation water, improved irrigated agricultural practices and vegetable gardening, been provided to the community?
6. Did communities supply local labor for constructing irrigation system structure, canals and for preparing and cultivating fields? Did they provide local materials, storage and guards? Were seeds and tools distributed as incentives for participation?
7. Have the farmers been organized into Water Users Groups (WUGs) and trained on routine operation and maintenance practices; schedules, record keeping, guidelines for problem diagnosis, etc? Has a referral system been set up for obtaining more expert assistance in case of repairs? Does it seem likely that members of the WUGs will contribute to a village account for fuel, oil, spare parts, etc. for the irrigation system after the first harvest? Have farmers been organized to reserve and store portions of harvest for planting in later seasons?
8. Have community discussion leaders been trained in basic water use, development and conservation concepts, and techniques for participant involvement in problem identification and solving, simulations and feedback?

9. Did Africare, the community and the Ethiopian Government contribute 40% of total project inputs: drilling equipment and supplies, technical staff, and training in operating and maintenance; transportation, labor to construct irrigation systems, and cultivation of fields? Did the MOA provide technical assistance; engineers, hydrologists, and extension agents, to oversee construction of the irrigation system and to provide training as stated in the Grant? Are there appropriate MOA/IDD (Irrigation Development Department) interfaces and support for maintaining the systems operation?
10. Has project implementation included Ethiopians at all levels, including family members, community leaders, civil engineers, hydrologists, well drillers and agricultural extension staff?
11. Has the project encouraged the MOA/IDD to establish a seedling nursery to support afforestation, conservation, and erosion control activities, and to promote inter-cropping, crop rotations and alternate crops?
12. Has the requirement for relief assistance by the target community been reduced?

B. Means of Verification

- Review Ministry of Health data on health related problems and diseases associated with the absence of safe water.
- Review Ethiopian Nutrition Institute (ENI) 1980 survey.
- Review GOE data on hydrological studies in Tigray on potential sites for exploitation of springs, streams and ground water sources.
- Review hydrological reconnaissance and electrical resistivity sounding and field surveys conducted by Africare to locate soil types and estimate potential depth of wells.
- Review of logs and reports on well drilling activities.
- Review of prior relief records during drought and comparison to recent records under similar conditions.
- Review of project records; irrigation system operations records, pump use records, garden records, and project reports.
- Review of health clinic records.
- Interviews with community.
- Site observations/inspections.

C. Assumptions

- No major floods to destroy dam.
- Region remains stable and secure.
- No major epidemics nor outbreaks of nutritionally related diseases.

- Spare parts, supplies and fuel are routinely available.
- MOA/IDD continues to receive adequate budget, staff and transportation for their participation.

D. Other

The MOA plans on establishing a Water Use Training School.

Agricultural production statistics are practically non-existent in Tigray (Project Proposal: page 13).

3. CARE: Borana Rangelands Vet Scout Program

\$113,853

Sixteen Vet Scouts will be trained to provide basic veterinarian assistance and livestock/rangeland management guidance and veterinarian medicines and supplies to herders in Borana.

Implementing partners are CARE International in Ethiopia and the Southern Rangelands Development Unit (SORDU), a part of the Ministry of Agriculture (MOA). Vet Scouts will work closely with CARE extension staff already operating in the communities.

GOAL: To decrease the risk of famine for the people of the Borana Region by improving the health of the livestock and thereby increasing the production of the staple food, milk.

A. Field Implementation

The Grant specifies that the Project objectives are to:

- train selected community members to look after the basic veterinary needs of the livestock population of the region;
- improve the supply of basic veterinary drugs available in the Borana Region;
- assist the local communities in setting up their own sustainable and replicable veterinary health care program.

Improved livestock management will produce an increase in food security for the villagers and help mitigate negative effects of seasonal and environmental changes upon food security in the semi-arid region.

The immediate beneficiaries are the 46,000 Borana pastoralists living in the Dire and Yabello/Teltele Awrajas of southern Ethiopia. The Borana people are pastoralists and almost completely dependent on livestock for food and economic opportunities. Livestock supply the subsistence basics of milk, blood and meat. Livestock and milk are sold to buy grain, mainly maize, to supplement their diets especially during dry season when milk production is low.

The evaluation team will consider the following questions:

1. Have 16 Vet Scout participants received livestock technical training from SORDU? Are they capable of diagnosing disease, administering drugs, vaccinating, and knowledgeable of disease prevention, and Early Warning detection of epidemic diseases and pests?
2. Has each Vet Scout been provided with medicine and equipment kits?

3. Have Vet Scouts returned to their villages? Are they working with pastoralists to introduce cattle management techniques that prevent disease and pest problems?
4. Has the SORDU laboratory been supplied with equipment? Have MOA and SORDU provided medicines and veterinary supplies? Has SORDU provided professional services of Veterinarians for technical assistance and major problems? Has a sustainable veterinary medicines and supplies distribution outlet been established?
5. Are the Peasant Associations contributing labor and cash for medicines and Vet Scout maintenance? Is there one Vet Scout for each of the 16 Associations? Is there a continuous supply of veterinary drugs through SORDU? Is the community trained to implement and maintain sustainable development activities?
6. Has an Early Warning System been established by Vet Scouts to identify upcoming pests?
7. Have 30% of livestock population received treatment by Vet Scouts? Have livestock herd and health conditions improved (10% less livestock mortality due to diseases) and livestock output production levels (milk) increased? Is there more milk in the markets (10%)? Have livestock prices increased or decreased?
8. Is the improved health of the cattle, impacting the Borana's capacity for surviving drought conditions without external food inputs? Is the nutritional status, health status, and food security of the Borana improved? If drought has occurred did the population remain self sufficient for 6 additional months?
9. Are an additional 20 Vet Scouts being trained (or plans for) in added sessions?
10. Has the project complimented traditional methods and values?

B. Means of Verification

- Review of SORDU and ILCA data and reports and comparisons to current conditions.
- Review of CARE needs assessment conducted in 1987 and evaluation conducted in 1990.
- Review Early Warning System's data on market prices, livestock conditions and rainfall (see Other).
- Review of baseline data collected and indicators identified during CARE staff workshops, project records and reports.

C. Assumptions

- Civil strife doesn't undermine implementation of the project.
- Vet Scouts return to communities to work and use medicine income to restock their kits.
- Communities contribute to Vet Scouts salaries and pastoralists pay them for medicines so they can restock their kits.

D. Other

The community approached CARE for assistance and solutions to the problem of insufficient veterinary services. SORDU had implemented an earlier Vet-Scout program in the early 1980's.

The community selects Vet Scout trainees.

The Borana Rangelands Development Project (CARE's overall program) has incorporated an Early Warning System component.

4. Feed My People International (FMPI): Tigray Emergency Seed Bank **\$200,000**

Construction and equipment of two seed storage facilities and two machine sheds, provision of seeds, tools, training, and technical assistance to establish seed banks in two districts in Tigray.

Implementing partners are FMPI and the Nazareth Children's Center and Integrated Community Development (NACID).

GOAL: To improve the food security of households/communities by increasing their capacity to store a buffer stock of quality seed and to ensure the conservation of drought resistant and vigorous local crop species needed to maintain traditional food production.

A. Field Implementation

The Grant specifies that the project will construct two seed storage facilities and two cleaning sheds and will create a revolving source for distributing seeds. It also states that utilizing cleaning equipment increases harvest by 25%.

Beneficiaries are 1,500 farm families who receive seeds. Average household size is estimated at five people, total estimated beneficiaries is 7,500 people during first cultivation cycle.

The evaluation team will consider the following questions:

1. Are two seed storage facilities (8x12 meters) and two seed cleaning machine sheds (4x6 meters) constructed, equipped and operating in the Agame Awraja district? Are on-site key personnel employed (foreman, store keeper, account clerk, guards)?
2. Have 120 mt of seed: 80 kgs mixed seed provided to 1,500 individual farmers (enough to plant 1 hectare each), been received, stored and initial loans made? Have tools and cultivation equipment been supplied?
3. Are two seed banks operating with revolving stocks of drought resistant seeds? Are the seed banks properly supervised, maintained, and secure, and do they have an efficient accounting program implemented?
4. Did communities participate by making and installing cement blocks for warehouse construction? How many local workers are hired to build warehouses (80)? How many were former fighters and returned refugees?
5. Have the 1,500 farm families been provided with appropriate training and organizational assistance to operate seed banks, including skills in seed selection, production, processing, distribution and marketing?

6. Have seed bank committees organized to provide an institutional base, delivery system and physical facilities for emergency storage if necessary? Have the seed bank committees established criteria and dates for payments; do they maintain repayment records, and hold tools for lending?
7. Has the MOA provided technical assistance and training in production technology?
8. Has the Ethiopia Seed Corporation provided expertise and skills to farmers in seed selection, production, processing, distribution and marketing? Did they have enough seeds in stock? What was the quality of the seeds; local seed varieties rather than imports? Will they be able to provide additional seeds? How many seeds from outside sources are required for second planting?
9. Are the farmers repaying initial loans plus 2% at harvest? Are they also storing their own seed in the banks? What is the quality of seeds being repaid and stored? If a harvest is in, have an additional 1,500 farmers received seed loans for the second cultivation cycle from the stock of repaid seeds? Have new borrower groups been added as repayments increase? Are neighboring villages borrowing from the seed banks or establishing their own seed banks?
10. Are 50% of the committee members women and was priority given to female household heads in initial seed distribution? How many women receive and repay seeds, and how much and quality compared to males?
11. Have farmers improved their knowledge of drought resistant seeds, and skills in planting and marketing? Have they improved their families' lifestyles with the ability to buy clothing and other consumer goods from the sales of their surplus? Have farmers' attitudes changed in approach to farming from a job to a livelihood?
13. Have forage crops been introduced to reduce overgrazing and destruction of scarce vegetation, and to check soil erosion while maintaining soil moisture? Is green manure being used to add organic bio-mass to soil to increase biological activities, water retention and nitrogen?
14. Has the crop productivity improved? Has the number of fields unproductive due to drought decreased? Is there a reduced need for emergency distribution of grain and money? Are less people migrating in search of work? Are there changes in markets, cash availability, nutritional status? Are surplus seeds being sold in the market?

B. Means of Verification

- Review and comparison of project reports and records.
- Review and comparison of reports of MOA, RRC, REST, ESC, etc.
- Review of Early Warning and Planning Services of the Relief and Rehabilitation Commission reports.
- Observations and interviews with farmers, community, and market vendors.
- Market surveys of local seed and farm tools prices conducted by NACID.
- Baseline data on beneficiaries and their needs and potentials of the project area collected by NACID.

C. Assumptions

- Farmers/communities don't consume seeds.
- Civil strife or drought doesn't disrupt construction nor cause depletion of stocks.

D. Other

Drought resistant, locally appropriate and tested seed stock are purchased from the Ethiopia Seed Corporation (ESC). They will continue to have seed stock available if project is replicated or harvest fails.

FMPI/NACID operate an orphanage, school, medical center and a food for work program that has drilled wells, started a small farm, planted trees and implemented a cement block manufacturing project in Nazareth. This project serves as a launching point for a similar program for Tigray.

Actual sites selected are Bezet and Ganta-Afeshum. Fifteen seed committees have been formed. As of May 8th report, wheat barley mixture and teft cultivars had been acquired and 25% distributed. Two temporary warehouses rented (for use until construction is completed) and tools and equipment for cultivation acquired and stored.

**5. Lutheran World Relief (LWR): Soil and Water Conservation,
Dire Dawa \$190,000**

Development of water systems including small dams, gravity-fed piped and shallow wells, natural springs, and small scale irrigation and livestock sources. Provision of cereal seeds and tools for agricultural production and soil conservation and erosion control measures to stabilize soil.

Implementing partners are Lutheran World Federation World Service (LWF/WS) and the Evangelical Ethiopian Church/Mekane Yesus (EECMY).

GOAL: To increase the water supply of three sites in Dire Dawa Zuria Province, and one in Adigala Province, in order to improve agricultural productivity.

The project is designed to increase community-wide food security and general nutrition. Via its emphasis on water supplies and agricultural inputs, it aims at food self-sufficiency and preventing the periodic dependence on relief food.

A. Field Implementation

The Grant specifies that the Project objectives are to:

- provide reliable water sources by constructing river diversions, and by developing natural springs to provide potable water;
- develop and rehabilitate small-scale irrigation and livestock water sources;
- provide seeds, handtools, and plow oxen for the development of agricultural systems;
- provide soil conservation and erosion control measures upstream of the dams and canals to stabilize the soil.

The beneficiaries are 2,700 agro-pastoralists in Zuria Province and 1,000 nomadic pastoralists in Adigala. The beneficiaries are principally women and the poorest.

The poorest will benefit from the project's emphasis on food production, both of cereals for self-sufficiency, and for income generation. After the first transitional year, annual family income for the beneficiaries is estimated to be \$2,800. The project will provide employment to 1,200 laborers for four sites through a Food for Work activity which will be funded by other means.

The project will require in-community agreements that at least one half of committee members elected be women and will specify

that priority be given to female household heads in allocation of initial seed loans.

The evaluation team will consider the following questions:

1. Are spring development and improvement completed at three sites: natural springs cleaned and widened as appropriate; water diverted into small masonry storage dams with capacities of 20,000 to 30,000 cubic meters each; water collected in storage dams used to irrigate fields during the day; gravity-fed piped water installed at suitable sites; shallow wells dug where appropriate?
2. Has a weir to divert water to fields for gravity-fed irrigation been constructed (reinforced with 25 cm of concrete throughout the upper surface, and a 15 meter apron of gabions)? Are diversion canals constructed (of masonry, with flush outlets, overspill deflectors and control gates located on both sides of the weir)? How many hectares are being irrigated (260)?
3. Is terracing consisting of stone or soil bunds constructed? Have 100,000 trees been planted to conserve soil, provide fuel and building timber, form windbreaks, and stabilize canal banks? What is the sapling survival rate? Have soil conditions in the watershed been improved (terracing and tree planting will help the soil retain more rainfall, reducing runoff, and improving the natural ability of the soil to grow crops)?
4. Are farmers producing three crops per year (vegetables, especially tomatoes and onions with high cash value, dominate two plantings)? What is the production yield (normal yield is 15,000 kg of onions per hectare and 10,000 kg of tomatoes)? In the third season, did farmers plant maize and sorghum? What is the yield (normal is 2,500 kg per hectare)? Are the farmers' incomes increased, their nutrition improved through a broader diet, and vulnerability decreased when rains fail?
5. Are the irrigable areas sustaining long term self-employment for members of the local communities? Is cleaner water available, and a wider range of food?
6. Does the local market have an increased supply of nutritious food, and is small-scale trade stimulated?
7. Have the people improved their lifestyles and farming practices without dislocating their cultural patterns and locally attuned agricultural knowledge? Have neighboring communities requested that the activities be replicated in their localities?

8. How many people actually participated and benefitted from this project? How many women and the poorest? Has the burden of water drawing and agriculture on women been affected?
9. How many cereal seeds (60 MT) and tools (1,600) were distributed? Were seeds distributed to a wider community than just water project participants? How were outsiders selected and how many women and the poorest? How much grain (2,000 MT) was distributed for food for work? How many employees, women and poorest, participated?
10. Did the MOA assist in marketing the produce from the project and provide extension service during and after the construction phase, including provision of seeds and training in modified agricultural practices? How many people received training and in what?
11. How many surveyors received training at the Ethiopia Mapping Authority in Addis Ababa in the use of modern instruments?
12. Were counterparts selected by communities and trained to work with LWF and EECMY technicians to maintain the completed water systems? How many?
13. Did communities provide storage of grain; assume responsibility for clearing debris at weirs, maintenance and weeding of canals, desilting of dams, repairing check dams, and maintenance of terracing and trees?

B. Means of Verification

- Review of baseline surveys conducted by EECMY, LWF/WS soil and water conservation technicians and MOA agronomists and veterinary officers.
- Review of project records and reports including feasibility studies and surveys, site plans and designs, and RRC independent assessment.
- Interviews with community farmers, site observations and inspections.

C. Assumptions

- Working relationships between LWF/WS and EECMY continues and they have adequate staff.
- Civil strife does not undermine the work or disrupt LWF/WS, EECMY or MOA's ability to provide technical assistance.

D. Other

Average rainfall for the area is between 400 and 700 millimeters.

The communities originally submitted a request to the MOA requesting LWF/WS assistance in soil and water conservation for this project. The poorest selected the sites to be developed.

LWF and EECMY implement the Dire Dawa Medical Project to provide primary health care the rural population in the area. LWF/WS plans on continuing the project at a rate of four sites per year.

III. TEAM COMPOSITION

The evaluation team will be comprised of five specialists. Two members will be OFDA/PMP staff, specifically, the Famine Mitigation Activity Specialist (USDA/OICD PASA), and the AAAS Fellow assigned to OFDA. The other three specialists will include other USDA personnel and consultants.

Dr. Barry Colley, Agricultural Extension and Farming Systems Specialist, Consultant, has been chosen because of his knowledge of the area and experience with implementing projects in Ethiopia. He worked in Ethiopia as Africare's Country Director and Program Officer from 1985-88. Dr. Colley has participated in Famine Mitigation Activity Planning Workshops and co-wrote the Activity's Strategy Paper on Agriculture.

Lynn Uttal, Consultant Water Systems Specialist, has been selected due to his extensive experience in implementation and training in water systems, especially irrigation systems. Mr. Uttal has prior experience working with OFDA and Peace Corps. In addition, he produced the Famine Mitigation Strategy Paper on Water Resources. Mr. Uttal will assume responsibility for the two water projects and provide technical assistance in appropriate technologies for other projects.

Dennis Phillippi, Rangeland Conservation Specialist, USDA/SCS, has been selected to participate as principal of the Care Vet Scout Program and to provide assistance on the other projects in assessing their effects on the environment. The water resource and agriculture projects all impact rangeland use.

Maxx Dilley, OFDA AAAS Fellow, is a Geographer and will focus on Early Warning Indicators and vulnerability. He is also involved with evaluations within the PMP Division and will be responsible for the final evaluation report.

Lynnette Simon, Famine Mitigation Activity, has been responsible for the Program since its inception, including proposal review, selection and monitoring. She will be responsible for project management issues, and the final report.

IV. ETHIOPIA ASSESSMENT ITINERARY

July 10	Lynnette arrives Addis at 7:55 pm on Lufthansa # 590.
July 12-13	Schedule meetings with AID, Ministries and NGOs. Collect baseline data. Confirm/make arrangements for lodging, ground and air travel.
July 12	Maxx, Lynn and Barry meet at OFDA at 2:00 pm. Dennis meets team at Dulles.
July 13	Team arrives in Addis at 7:55 pm.
July 14 - 15	Meetings with AID, Ministries, and NGOs. Review collected data.
July 16	Travel to Dire Dawa by air, depart 1:00 pm.
July 17 - 18	Site visits of LWR's Soil and Water Conservation Program.
July 19	Return to Addis at 11:00 am by air.
July 20 - 21	Travel to Mekele, Tigray at 1:00 pm by air. Site visits of Feed My People/NACID's Seed Bank in Adigrat and Bezet.
July 22 - 23	Site visits of Africare's Soil and Water Projects in Abiy Adi, near Wukro and Adigrat.
July 24	Depart for Addis at 10:30 am by air. Addis: Report writing and collecting additional information.
July 25	Site visit of Africare's Vegetable Trough Project at Alem Tena and Nazareth in Southern Shewa. Travel by land and return to Addis in pm.
July 26	Travel by land to Northern Shewa to visit Africare's Vegetable Troughs in Debre Brahane, Menz Awraja. Return to Addis in pm.
July 27	Addis Ababa - Meetings, report writing.
July 28	Travel by land to Yabello, Borana.
July 29 - 31	Site Visit of Care's Vet Scout and other programs.
July 31	Barry Colley departs Addis at 10:40 pm.
August 1	Return to Addis by land.

- August 2 - 3 Team prepares report in Addis; collects any additional information, and final meetings.
- August 4 Debriefing for AID, Ministries and NGOs at 10:00 am. Depart Addis at 1:00 pm.
- August 4 Arrive Nairobi at 2:45 pm. Meeting with Carolyn Mutamba. Depart Nairobi at 10:35 pm.
- August 5 Arrive Washington, D.C. at 2:40 pm.
- August 6 Debriefing at OFDA at 10:30 am.

V. PROJECT METHODS

A. Project Documentation

In the conduct of the evaluation, the team will review, at a minimum, the following documentation:

1. Project Proposals
2. Project Grant Agreements
3. Required periodic reports
4. Baseline data and other reports listed under Individual Projects and obtained in-country.

B. Project Personnel Interviews

In addition, the team will seek first-hand information from AID Mission staff, implementing PVO field representatives and project field staff. This will involve gathering information using a variety of methods such as:

1. Key informant interviews with USAID, PVO, Ethiopian Government Ministries, and local NGOs.
2. Individual and small group interviews with project participants, beneficiaries, market vendors, seed suppliers, and community groups (Water Users, Peasant Associations, etc).
3. Direct observations of all projects' facilities and activities.

VI. REPORT FORMAT

The presentation of the final report will follow the Outline developed by OFDA/PMP, on the following page.

Appendix 5

**Outline for OFDA Evaluation Reports
(Emergency Relief and PMP Evaluations)**

I. Executive Summary

- A. Purpose and Methodology
- B. Major Findings
- C. Recommendations

II. Introduction

- A. Purpose of OFDA/PMP or Emergency Relief Strategy
- B. Constraints or Opportunities Addressed
- C. General technical and Organizational Approach

III. Evaluation Purpose and Methodology

- A. Rationale for the Evaluation
- B. Hypotheses, Causal Chains, Linkages, or Concepts to be Examined/Tested
- C. Evaluation Methodology
 - 1. Key Variables/issues to be explored
 - 2. Effectiveness and impact
 - 3. How the data were collected
 - 4. Type of analysis employed
- D. Limitations of the Methodology

IV. Organization of the PMP Program/Project/Activity by Implementor

- A. Lutheran World Relief Soil and Water Conservation
- B. Africare Small Scale Irrigation (Earth Dams)
- C. Africare Small Scale Irrigation (Water Supply)
- D. Africare Vegetable Trough Production
- E. Feed My People, International Emergency Seed Bank Project
- F. Care Borana Vet Scout Program

V. Efficiency, Effectiveness and Impact of the Program by Implementor

- A. - F. as above
 - Design, Management and Technical Issues of Projects
 - 1. What is working and what is not working?
 - 2. Is the project on schedule (time and costs) and likely to achieve expected results?
 - 3. How are problems being resolved?
 - 4. Are assumptions made still valid? Any new assumptions?

5. What are lessons learned to date?
6. Is the project going to contribute to the goal of saving lives and protecting economic assets?
7. Will the results be sustainable?

VI. Conclusions

- A. What has Worked/Not Worked
- B. Timeliness of Expected Results
- C. Problem Solving
- D. Validity of Initial assumptions
- E. Lives Saved and Property Protected.
- F. Unanticipated Results
- G. Sustainability
- H. Cost Effectiveness

VII. Recommendations

- A. Changes needed to Enhance Project/Program/Activity Success
- B. Design and Management Issues
- C. Sufficiency of Resources Necessary to Achieve Desired End Results

VII. Lessons Learned

- A. Project Design Implications
- B. Broad Action Implications

APPENDIX 6

**Famine Mitigation Grant Program
Pre-Proposal Evaluation Scoring Instrument**

Reference #: _____ Offeror: _____
Reviewer: _____

Project Title: _____
Signature: _____

	<i>Score</i>
1. <i>Technical quality. (25 points):</i>	_____
2. <i>Long-term mitigation potential. (20 points):</i>	_____
3. <i>Institutional capacity enhancement potential. (15 points):</i>	_____
4. <i>Adaptation potential. (15 points):</i>	_____
5. <i>Prior track record. (10 points):</i>	_____
6. <i>Sustainability of activities. (5 points):</i>	_____
7. <i>Mission and Host country support. (5 points):</i>	_____
8. <i>Additional Criteria (5 points):</i>	_____
1. <i>Relationship to other activities.</i>	
2. <i>Private sector involvement.</i>	
3. <i>Ability to leverage other resources.</i>	
4. <i>Resulting economic benefits.</i>	
Total:	_____

Comments:

1. *Technical quality. (25 points):*

2. *Long-term mitigation potential. (20 points):*

3. *Institutional capacity enhancement potential. (15 points):*

4. *Adaptation potential. (15 points):*

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5. *Prior track record. (10 points):*

6. *Sustainability of activities. (5 points):*

7. *Mission and Host country support. (5 points):*

8. *Additional Criteria (5 points):*
 1. *Relationship to other activities.*
 2. *Private sector involvement.*
 3. *Ability to leverage other resources.*
 4. *Resulting economic benefits.*

Attachment Three

TECHNICAL EVALUATION CRITERIA

A. The criteria presented below have been tailored to the requirements of this RFA. The relative importance of each criterion is indicated by approximate weight by points, of which 100 points are possible. Applicants should note that these criteria serve to: (a) identify the significant matters which applicants should address in their applications and (b) set the standard against which all applications will be evaluated.

B. The technical application will be evaluated in accordance with the criteria set forth below. The cost portion of the application of all Applicants submitting technically acceptable applications will be evaluated for general reasonableness and value, with respect to the technical component. Award(s) will be made to the responsible Applicant(s) whose application offers the greatest value, cost and other factors considered.

The criteria are:

1. General (60 points)

Offeror: _____
Reviewer: _____

Project Title: _____
Signature: _____

Note: Please provide all comments, notes, and observations regarding the proposal under review in the spaces provided below for each evaluation criterion so that we may be better able to discuss the results of the evaluation process with the Applicant.

	Score
1. General. (60 points):	
a. Responsiveness, clarity and appropriateness of application (10)	_____
b. Approach enhances local institutional capabilities to cope with famines. (10)	_____
c. Approach exhibits potential positive long-term impact. (10)	_____
d. Approach exhibits potential for widespread adaptation. (10)	_____
e. Transferability/sustainability once initial inputs cease. (10)	_____
f. Strength of planning/assessment, monitoring and evaluation. (10)	_____
2. <u>Institutional Qualifications and Capabilities. (25 points):</u>	
a. Experience in design and implementation of similar programs. (5)	_____
b. Experience and established project area operations and networks. (5)	_____
c. Capabilities related to planning, training and collaboration with NGOs. (5)	_____
d. Linkages to local organizations that can provide assistance. (10)	_____
3. <u>Qualifications and Experience of Personnel. (15 points):</u>	
a. Technological and work experience in fields of activity proposed. (10)	_____
b. Country-specific experience and fluency in major language groups. (5)	_____
Total:	_____

Comments:

1. **General (60 points)**
 - a. Responsiveness, clarity and appropriateness of application to the problem area to be addressed. (10)
 - b. Strength of the overall proposed approach as program that enhances local institutional capabilities to better cope with recurrent famine situations, including coordination with other agencies, administration, management and implementation of the program. (10)
 - c. Strength of the overall proposed approach as program that exhibits potential positive long-term impact. (10)
 - d. Proposed approach exhibits potential for widespread adaptation beyond the project area. (10)

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e. Transferability and sustainability of activities once initial inputs cease. (10)

f. Strength of the proposed approach vis-a-vis planning/assessment, monitoring and evaluation. (10)
Technical quality. (25 points):

2. Institutional Qualifications and Capabilities (25 points)

a. Demonstrated experience in the design and implementation of similar programs. (5)

b. Demonstrated international experience and established African, particularly in the proposed project area, operations and networks. (5)

c. Demonstrated capabilities in designing, implementing, monitoring, and evaluating program inputs related to planning, in-country training and collaboration with NGOs. (5)

d. Demonstrated linkages to other local organizations that can provide in-country assistance. (10)

3. Qualifications and Experience of Personnel (15 points)

a. Technological and work experience in fields of activity being proposed. (10)

b. Country-specific experience and fluency in major language groups. (5)

APPENDIX 8

TECHNICAL EVALUATION CRITERIA

A. The criteria presented below have been tailored to the requirements of this RFA. The relative importance of each criterion is indicated by approximate weight by points, of which 100 points are possible. Applicants should note that these criteria serve to: (a) identify the significant matters which applicants should address in their applications and (b) set the standard against which all applications will be evaluated.

B. The technical application will be evaluated in accordance with the criteria set forth below. The cost portion of the application of all Applicants submitting technically acceptable applications will be evaluated for general reasonableness and value, with respect to the technical component. Award(s) will be made to the responsible Applicant(s) whose application offers the greatest value, cost and other factors considered.

The criteria are:

1. **General (60 points)**

- a. Responsiveness, clarity and appropriateness of application to the problem area to be addressed. (10)
- b. Strength of the overall proposed approach as program that enhances local institutional capabilities to better cope with recurrent famine situations, including coordination with other agencies, administration, management and implementation of the program. (10)
- c. Strength of the overall proposed approach as program that exhibits potential positive long-term impact. (10)
- d. Proposed approach exhibits potential for widespread adaptation beyond the project area. (10)
- e. Transferability and sustainability of activities once initial inputs cease. (10)
- f. Strength of the proposed approach vis-a-vis planning/assessment, monitoring and evaluation. (10)

2. **Institutional Qualifications and Capabilities (25 points)**

- a. Demonstrated experience in the design and implementation of similar programs. (5)
- b. Demonstrated international experience and established African, particularly in the proposed project area, operations and networks. (5)
- c. Demonstrated capabilities in designing, implementing, monitoring, and evaluating program inputs related to planning, in-country training and collaboration with NGOs. (5)
- d. Demonstrated linkages to other local organizations that can provide in-country assistance. (10)

3. **Qualifications and Experience of Personnel (15 points)**

- a. Technological and work experience in fields of activity being proposed. (10)
- b. Country-specific experience and fluency in major language groups. (5)

C. The above technical selection criteria are designed to allow A.I.D. to choose the application of highest quality and most relevance to critical problems facing the target countries.

Pre-Proposal Evaluation Criteria

1. ***Technical quality of pre-proposal. (25 points):***
Technical interventions proposed address causal factors of problem, order and sequence of technical aspects are logical, and are based on sound and appropriate methodologies. Proposed organizational, management, logistical, and resource activities should be directly supportive of achieving expected goals.
2. ***Potential for long-term mitigation of famines. (20 points):***
Proposed interventions develop skills, capacities, structures, or mechanisms that may be employed not only under current emergency situations, but also under similar future emergency or pre-emergency situations.
3. ***Potential to enhance the institutional capacity of affected countries. (15 points):***
Proposed interventions are designed to improve or enhance capacities of formal or informal institutions to effectively respond causal factors of problem, including efforts in contingency planning, resource mobilization, monitoring capacities, or emergency or pre-emergency operations management.
4. ***Potential for widespread adaptation beyond the project area. (15 points):***
General principles of proposed interventions (technical, organizational, logistical) have relevance for application beyond designated project area, and beyond limited scope of project as imposed by maximum funding levels under this grant program.
5. ***Prior track record of offeror in similar efforts. (10 points):***
Offeror has successfully implemented prior activities in proposed technical area, geographical location, or institutional scenario as currently proposed.
6. ***Sustainability of activities when OFDA inputs cease. (5 points):***
Proposed interventions or activities incorporate mechanisms for continued resource provision, dissemination of information, or ongoing institutional or organizational viability once initial grant is exhausted.
7. ***Support for proposal by local AID Mission and Host country agencies. (5 points):***
Mission and Host Country agencies concur on validity and viability of proposed activities or interventions.
8. ***Additional Criteria (5 points):***
 1. ***Relationship to other activities already underway:*** Proposed interventions support or enhance existing programs in proposed project area, or can draw on resources already on hand.
 2. ***Private sector involvement:*** Proposed interventions are implemented in collaboration with, or stimulate the participation of private sector entities in meeting project goals.
 3. ***Ability to leverage other resources:*** Proposed interventions can draw on resources already on hand or stimulate provision of additional complementary resources from other donors.
 4. ***Potential economic benefits resulting from the activity:*** Proposed interventions effect an improvement or enhancement of target populations economic opportunity options or support an economic environment enabling such.